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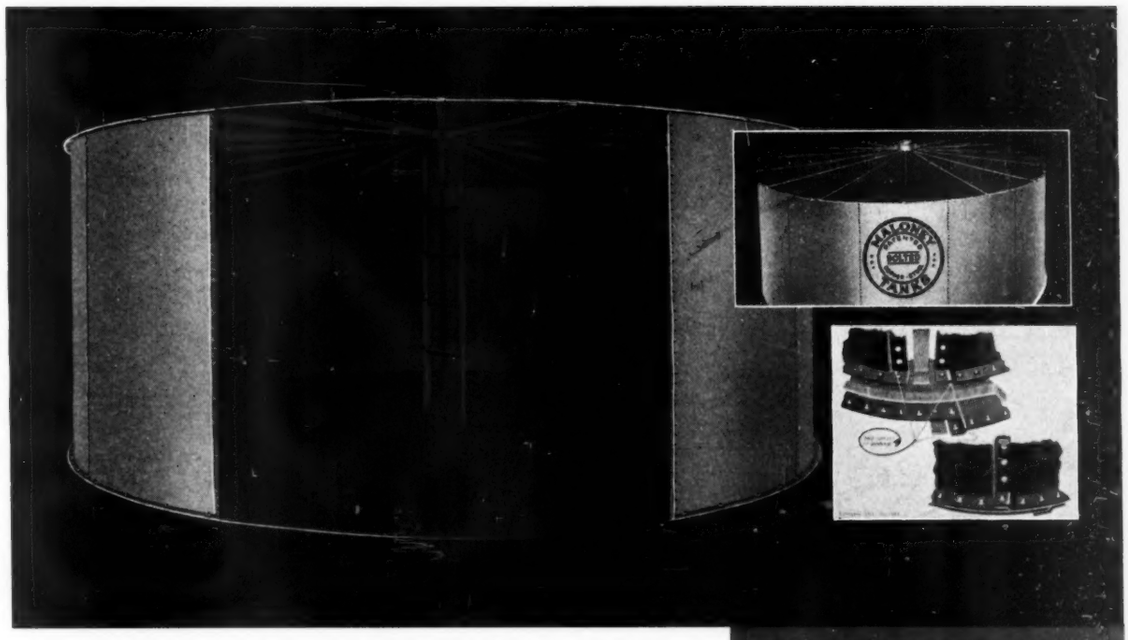

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OIL MAN'S CALENDAR

November

22-23—Tulsa, fourth annual National Road Oil Congress.

December

4-5-6—Beaumont, Tex., Petroleum Electric Power Club.

4-5-6—Omaha, Neb., Nebraska Petroleum Marketers, Inc., Hotel Fontenelle.

7-8—Fort Worth, Tex., fifth annual meeting, Independent Petroleum Association of America.

19—Los Angeles, Calif., California Oil and Gas Association, annual banquet and Xmas Jinks, Biltmore Hotel.

January

8-10—Milwaukee, Wis., annual convention and Equipment Show of Wisconsin Petroleum Association, Parkinson Hotel.

14-18—Detroit, Mich., Society of Automotive Engineers, annual meeting, Book Cadillac Hotel.

17-18—Minneapolis, Minn., Northwest Petroleum Association, Minnesota division, West Hotel.

February

12-14—Columbus, Ohio, Ohio Petroleum Marketers Association, annual dinner, Deshler-Wallick Hotel.

7-8—Louisville, Ky., Kentucky Petroleum Marketers Association.

March

21-23—Wichita, Kans., American Association of Petroleum Geologists, annual meeting.

April

8-13—Houston, Tex., Oil Equipment and Engineering Exposition.

11-13—Dallas, Tex., Petroleum Industry Electrical Association, Baker Hotel.

22—New York, American Chemical Society, semiannual meeting.

(?)—Wichita, Kans., Kansas Oil Men's Association.

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Federal Control Finds Few Adherents Among Oil Men, But Interstate Compact Gains in Favor

By JAMES McINTYRE

WHILE the bulk of the testimony at the hearings before the sub-committee of the committee on Interstate and Foreign Commerce of the House of Representatives has been against Federal control of the oil industry, Norman L. Meyers, executive secretary of the Petroleum Administrative Board and Chairman of the Federal Tender Committee, came out at the Dallas hearing of the committee advocating legislation providing for practically nationalizing the industry. He admitted however, that for the purpose of controlling "hot" oil production in East Texas the Connally amendment and the co-operation of the Texas Railroad Commission are sufficient, providing proper allowables are set for production.

The directors of the American Petroleum Institute, meeting in Dallas, went on record in favor of an interstate compact, and voted against a substitute or minority resolution which favored a modified Thomas-Disney bill. The Institute's meeting was the largest in its history in point of attendance and the questions of Federal legislation; the East Texas situation; the gasoline buying program and the general industrial outlook were gone into extensively.

In the week's news from the fields of the country, Kansas took a prominent part with the big production of wells in the Haury-Burrton Pool in Reno County. Four Hunton lime wells showed a 24-hour production of 14,400 bbls. per day, and a fifth well opened production in Silicious lime, giving the pool three producing horizons, Chat, Hunton and Silicious lime.

In Oklahoma short extensions to the Fitts Pool in Pontotoc County and the Crescent Pool in Logan County were indicated and the South Burbank Pool in Osage County came through with more big producers from Burbank sand.

The potential production of the 8,000-acre Hobbs Pool in Lea County, New Mexico, was increased 7,192 bbls. per day with no increase in the acreage of the field.

A better feeling prevails in California than in any other autumn period in years owing to the good prospect of maintaining present stabilized conditions throughout the winter. A substantial increase in wildcatting is noticeable in that state.

The new well in the Rainbow Field in Union County, Arkansas, will not be as large as early estimates promised. It is flowing over 850 bbls. per day through 2½-inch tubing and 1-inch choke.

A new pool was opened on the Four Isle Dome in Terrebonne Parish, Louisiana Gulf Coast, with a 2,000-bbl. well flowing 44 gravity crude oil.

A second productive sand was opened in the new McNeil Field in Live Oak County, Southwest Texas.

Crude Oil Production in the United States

Estimated daily average production for the week ending November 17, and a comparison with the previous week and the Federal allocation follows:

		Federal allocation	
	Nov. 17	November	Nov. 10
Oklahoma—			
Oklahoma City	154,875	.....	151,350
Seminole-St. Louis	93,175	.....	80,250
Remainder of State	230,475	.....	227,350
Total Oklahoma	478,525	459,300	458,950
East Texas—			
Lathrop	170,600	.....	167,265
Kilgore	129,750	.....	129,760
Joiner	128,522	.....	123,520
Total East Texas	428,872	.....	420,545
West Texas	132,687	.....	142,565
North Central Texas	88,497	.....	83,750
Texas Panhandle	56,658	.....	63,028
East Central Texas	43,052	.....	43,515
Gulf Coast—Texas	166,223	.....	164,220
Southwest Texas	57,984	.....	61,052
Total State of Texas	973,883	957,300	978,675
Kansas	123,900	125,000	120,600
North Louisiana	24,045	.....	23,830
Gulf Coast—Louisiana	80,047	.....	82,421
Total Louisiana	104,092	90,000	106,251
Arkansas	30,220	30,000	30,190
Eastern Fields (except Michigan)	103,150	96,000	103,000
Michigan	25,855	29,000	26,421
Rocky Mountain area	96,250	91,700	96,160
California—			
Santa Fe Springs	40,200	.....	39,500
Long Beach	65,200	.....	65,150
Mountain View	13,700	.....	10,100
Elwood	10,600	.....	8,300
Kettleman Hills	56,500	.....	54,150
Remainder of State	308,800	.....	312,300
Total California	495,000	462,000	480,500
Total United States	2,430,875	2,340,300	2,409,747

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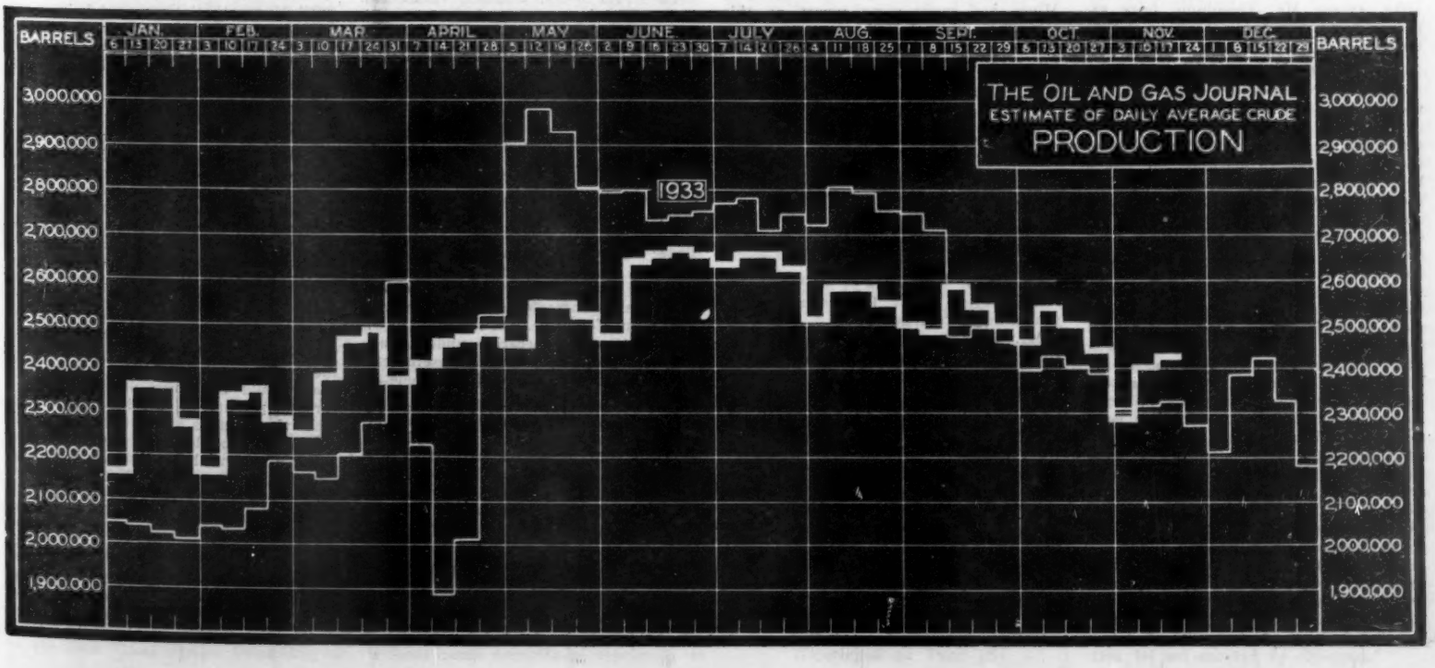

Government Official Favors Nationalizing Crude Oil Production

By ANDREW M. ROWLEY

DALLAS, Tex., Nov. 20.—Legislation providing for practically nationalizing the petroleum industry was advocated by Norman L. Meyers, executive secretary of the Petroleum Administrative Board and chairman of the Federal Tender Committee, at the hearing being held here by the subcommittee of the committee on Interstate and Foreign Commerce of the House of Representatives which is endeavoring to obtain facts regarding the petroleum industry to be used as a basis for recommendations regarding Federal legislation to be presented at the forthcoming session of Congress.

The committee opened its hearings here last Friday and will continue its sessions until tomorrow night or Thursday. It then will go to Los Angeles where it will hold hearings after which it will return to Washington to prepare the information it has obtained and formulate its recommendations. The committee is composed of William P. Cole, Jr., of Maryland, chairman; Samuel P. Pettengill, Indiana; Edward A. Kelly, Illinois; Charles A. Wolverton, New Jersey, and Carl E. Mapes, Michigan.

However, the bulk of the testimony introduced so far at the hearings here and at Oklahoma City where the committee met on Monday, Tuesday and Wednesday of last week, has been against Federal control of the industry. And, only one witness so far at all the hearings held in Washington, Oklahoma City and here, has advocated divorcement of pipe lines, that witness being Ernest O. Thompson, chairman of the Railroad Commission of Texas, who testified here last Friday. According to Mr. Wolverton, all witnesses-independents and majors alike, except Mr. Thompson, have expressed opposition to divorcement of pipe lines.

Meyers Expresses Views

Because of his position of authority in the Federal petroleum administration, considerable interest was attached to the testimony of Mr. Meyers, who was on the stand Saturday morning. He stated he desired legislation which would permit the Federal Government to control production of crude oil down to the individual well owner's property, if such control ever should be found necessary. He declared Congress had the power to regulate interstate shipments of petroleum regardless of whether such shipments were in excess of state laws and regardless of whether such petroleum was produced legally in any state not having laws regulating production. He said the Federal Government had power to regulate interstate shipments of other commodities such as cotton, iron, timbers, etc., regardless of whether these commodities were raised or produced legally according to state laws and fell back on the plea of "war powers" when questioned by the committee members as to where Congress got such authority.

Mr. Meyers favored enactment into permanent legislation of the Connally amendment to the Industrial Recovery Act which amendment grants authority for the stopping of shipments of petroleum in interstate commerce produced or manufactured in excess of quotas established by the state. He admitted that, for the purpose of controlling movements of hot oil out of East Texas the Connally amendment and co-operation of the Texas Railroad Commission are sufficient to accomplish the purpose without additional legislation, providing, however, that proper allowables be set for production. He said he felt it is necessary that legislation be enacted empowering some government agency to set allowables for the different oil producing states, and that the setting of allocations by the Federal Government should be made a part of the law.

Not Interested in Producers

Upon questioning by the committee, Mr. Meyers stated his sole desire for Federal legislation was for conservation of a natural resource and to provide low priced crude oil over as long a period as possible. Later, after more questions, he added "national defense" as another reason.

When asked "what authority does the Constitution give to Congress to insure a definite price for any commodity?" Mr. Meyers answered: "I am not interested in the price the producer gets. I want a low price for the consumer."

After he had fallen back on the plea of national defense as a reason for the need for Federal legislation to control the oil industry, Chairman Cole asked Mr. Meyers if the President or any department of the Federal Government ever had expressed concern over a possible lack of petroleum in time of war. Mr. Meyers stated he thought the Bureau of Mines had made some report on this somewhere around 1925 or so.

Mr. Pettengill asked Mr. Meyers: "Assuming that a state has no limitation on production, does Congress have power to set allocations?" Mr. Meyers answered: "Yes."

Mr. Wolverton brought the testimony of the witness to a close somewhat dramatically. He asked Mr. Meyers: "If your theory should prevail and be carried to its logical conclusion, would it not mean regimentation of all business in the United States?"

Stumped by "Regimentation"

Mr. Meyers said: "I don't know what you mean by 'regimentation'."

Mr. Wolverton then said: "Well, if you are not sufficiently up-to-date, with all the newspaper publicity on the subject, to know what regimentation means, there is no use of my wasting my time further in discussing it with you."

In answer to question by Chairman Cole, Mr. Meyers stated he is 28 years old.

Dawes Favors Minority Report

Henry M. Dawes, president of the Pure Oil Co., testified before the committee on Friday that he favored the minority report presented to the board of directors of the American Petroleum Institute and believed a majority of the petroleum industry favored that report instead of the report adopted by the board. He stated, however, he favored each and every provision of the report adopted by the board of directors of the Institute.

Mr. Dawes declared the fact oil is a migratory commodity and that every oil field is located within the confines of a single state naturally suggests the device of a compact between the states which has legal precedent but unfortunately, due to natural jealousies and minor divergence of interest would require a considerable time for its accomplishment if it should prove feasible. He said a counter suggestion in the way of legislation has been made to the effect the Government should assert its authority through its control over interstate commerce.

Mr. Dawes then said: "Within the last few weeks, a suggestion has been made which would be consistent with both schools of thought without either being obliged to make any compromises of principle. It is simply that the general provisions of the Disney-Thomas bill, which approached the problem from the standpoint of control over commerce, be enacted in a new bill which would also provide the Federal authority for a compact between the states, and that any time such a compact should be brought about, the Federal control features would be automatically eliminated. This suggestion seems to have met with very widespread acceptance by the industry and undoubtedly is the answer to most of the objections that have been brought to the procedure which had previously been suggested. No controversial theory is involved in the demand for the regulation of the production of crude oil.

Ample Legislation

"Except as the production of crude is involved, the oil industry has an ample sufficiency of restrictive legislation. There is general discouragement in the industry as to the operation of the code that has been in effect. Many of its provisions are contradictory and more are legally unenforceable. On the other hand, it permits of co-operative undertakings which are capable of infinite usefulness. Obviously, a recasting of the code is necessary.

"The industry can and should accomplish this task itself. The law and code probably contain enough permissive provisions so that after the mass of details which interferes with its operation is eliminated, there will remain a coherent and practical code of principles and an organization which, with the benevolent co-operation of the Government, for a time, will develop a self-regulation that will be effective. If the general principles are clearly formulated, local application can be left to local administration and the centralizing and co-ordinating influence reduced to a minimum. This is an evolutionary process and cannot be brought about over night.

"To attempt new legislation at this time when it has not been possible to digest that which is already on the statute books would be a great mistake. To hobble the industry by unneeded laws in its emergency and to smother the initiative which has made it great would be a tragedy and would prevent its participation in the recovery movement."

Mr. Pettengill intimated that unless the matter of an interstate compact were initiated by the states, it might take 20 years before such a compact would become effective if Congress had to pass permissive legislation first and then all the oil-producing states were included in such a compact.

Thompson Blames Ickes

Ernest O. Thompson, chairman of the Railroad Commission of Texas, placed the blame for conditions which have existed in East Texas squarely on the shoulders of Harold L. Ickes, oil administrator. He said telegrams urging the President to stop shipments of excess production from East Texas were sent to the President on July 11, 1933, and that the President signed an executive order July 12, 1933, putting into effect the Connally amendment but that it was not until 15 months later that Administrator Ickes made a move to establish the Federal Tender Board and stop shipments of excess production in interstate commerce.

Mr. Thompson declared he and the entire State of Texas was against any form of Federal control of the petroleum industry; and that no legislation was needed except to make the Connally amendment a permanent law. He said Texas alone has power to control its own production of crude oil or any production within its borders and that the Connally amendment, if properly enforced, meets all the requirements of the situation.

Mr. Thompson said Texas has 92 per cent of the potential crude oil production of the United States but that if the wells were opened to capacity the head would be blown off "these exaggerated potentials" within three weeks, and the State's potential production would drop to about 40 per cent of the nation's potential. He stated his belief that if all the wells in East Texas were opened to capacity for three weeks, East Texas would then cease to be any problem.

Favors Pipe Line Divorcement

Upon questioning by Mr. Wolverton, Mr. Thompson said he favored divorcement of pipe lines and declared there would be a wild scramble to buy these

Marland Calls Meeting of Governors

DALLAS, Tex., Nov. 17.—Governors of eight oil-producing states have been called to meet in conference December 3 to discuss Federal oil legislation generally and the possibilities of an interstate compact plan to regulate crude oil production.

Gov.-elect E. W. Marland of Oklahoma invited governors of California, New Mexico, Louisiana, Wyoming and Michigan to gather at his home in Ponca City for a review of the situation after he had visited James V. Allred, governor-elect of Texas, at Austin, and conferred over the long-distance telephone with Gov. Alf Landon of Kansas.

Personal attendance of the governors was requested. In his invitation, Mr. Marland said:

"The subject of discussion will be our attitude as governors of the oil-producing states toward Federal oil legislation in general and particularly to discuss the possibilities of an interstate compact to be entered into by the oil-producing states with the approval of congress."

Mr. Marland announced he intended to ask congress to pass an act to permit states to enter into oil compacts and declared he was flatly opposed "to the attempt on the part of some men in the oil industry to seek Federal control which would mean nationalization of the petroleum resources of our oil-producing states."

Northcutt Ely, Washington attorney and author of a treatise on the legal and legislative aspects of interstate compacts for the conservation of oil, has accepted the invitation of Mr. Marland to attend the meeting of governors of oil producing states.

pipe lines because they are the biggest money making part of the oil business. He did not say what would happen to connections of more than 250,000 of the industry's 325,000 wells, which make 1 bbl. or less per day each and on which the transportation tariff is less than the cost of gathering and transporting the crude.

T. J. Arnold, of the American Petroleum Co., told the committee details of the shipment of the gasoline cargo on the tanker Papoose. He said he was against Federal Government interference in any branch of the oil business except transportation in interstate and foreign commerce.

Ludwig Schmidt, petroleum engineer of the U. S. Bureau of Mines, connected with the Bartlesville, Okla., station, told of the great improvement and progress made by the petroleum industry in reducing evaporation losses.

H. C. Hill, in charge of the Bureau of Mines offices in Texas, favored control of production in certain fields although he said close spacing of wells and unrestricted production in certain fields would result in a greater ultimate recovery in those fields.

Present Laws Adequate

State control of production with Federal regulation of interstate commerce to check hot oil shipments is sufficient, J. Edgar Pew, vice president of the Sun Oil Co., told the committee when it resumed its hearing yesterday. Hot oil can be controlled by checking the relatively few outlets, but the job should be done by competent and trained men rather than the "barbers, wood-choppers and others they have," Mr. Pew said. Present control laws are adequate "when properly and honestly enforced," he declared in opposing the Thomas-Disney bill. When the Federal Government "gets a foot in, it goes too far," he said.

Denying that there is any imminent danger of exhaustion of petroleum resources, Mr. Pew recalled the numerous past cries of "wolf, wolf" and said there is no fear of failing oil supplies for generations, perhaps centuries. Conservation he defined as each generation's producing and using without waste and under the best conditions known at the time saying the public has a right to insist on oil production in such manner as will insure the supply lasting as long as possible and at a reasonable price.

Mr. Pew recommended that the authority we have now be effectively exercised, that the law of capture be repealed for a bottom hole pressure and acreage basis of recovery, that uniform state laws for conservation be passed, permissive unitization laws provided and interstate compacts established with the Federal Government helping to administer the compact, providing demand statistics and regulating interstate commerce. Competition can be relied upon to protect the public, he said, and he questioned whether either the industry or the public had benefited from the oil code, unless labor had.

Opposes Pipe Line Divorcement

Strongly opposing divorcement of pipe lines, Mr. Pew was reminded by one of the committeemen of President Roosevelt's pronouncement for separation, answering "without reflecting on the President, don't you think that he arrived at that conclusion without proper thought and mature study?"

Demand and competition are the operating factors in determining price, he said, denying that these were stifled by the majors owning most of the outlets from producing fields. Both the independent producer and refiner benefit more from the present policy than they would if pipe lines were divorced from integrated companies, many of whom are now carrying some lines at a loss, the Sun official said. Separation with the purchasing to be done at a point on the Gulf Coast would be impracticable, as many fields would sell no oil at all, he declared.

Members Differ

A division of opinion among members of the East Texas Tender Committee of the Railroad Commission regarding the necessity for Federal legislation appeared in the testimony of Tucker Royall, chairman, and R. W. Fair, one of the members. Mr. Royall favored a permissive interstate compact plan with Federal cooperation rather than Federal supervision and Federal control of interstate shipments. Mr. Royall praised the work of the Federal Tender Board and asserted "in less than 60 days, hot oil in East Texas will be only a matter of history." Mr. Royall said he could not subscribe to the statement of Norman Meyers, chairman of the Federal Tender Board, and executive secretary of the Petroleum Administrative Board, regarding control of production solely in the interest of the consumer.

"It was unfortunate coming from a representative of the Federal oil administration," Mr. Royall added. "The Government should protect those who have invested in this enormous industry. Mr. Meyers' idea is a popular one among demagogues and politicians, but I find that consumers as a whole are reasonable."

Mr. Fair expressed belief state agencies are incapable of handling the entire problem and said the current need was for "Federal control just as strong as you can make it." If such is not authorized, he favored an interstate compact plan which "if strong enough" might handle the job.

An attack on monopoly and what he termed the "corporate aristocracy" was made by Elwood Fouts of Houston, attorney for a number of independent operators, mostly in the Gulf Coast. Mr. Fouts attacked the Thomas-Disney bill on constitutional grounds and said the only Federal production control which the courts would uphold would be on the basis of potential, which would give Texas about 92 per cent of the nation's allowable. He denied that true conservation would be served by the bill, declaring large companies favoring it "are trying to escape the law of capture as far as possible" and really seek elimination of a large degree of competition and the fixing and stabilizing of prices. Mr. Fouts recommended to the committee that it find true conservation is not an issue, that no danger exists of imminent exhaustion of reserves, that the legislation would be unconstitutional, that the law of capture is really that of vested property rights, that the Connally amendment should be retained as a permanent prohibition against movement of illegal oil and its products, that integrated oil corporations should be broken up into their natural units and that pipe lines should be divorced and operated under direction of the Interstate Commerce Commission. Revision of antitrust laws to effect a complete decentralization of the industry was urged.

Curtailment Not Conservation

Drastic curtailment of oil production may be justifiable from the standpoint of the assumed economic advantages of a stabilized price structure, but it is not a conservation measure, Stanley Gill, of Houston, consulting engineer for a group of independents, told the committee this morning. Far more can be accomplished toward preserving petroleum reserves by improving the efficiency of utilization of liquid fuels than by any possible change in the method of producing oil, Mr. Gill declared.

"Curtailment of rates or production does not effect conservation of petroleum supplies, but may serve to stabilize the market for crude oil," Mr. Gill said. "If stabilization of the price structure is the object, the methods of allocation applied in effecting curtailment should be such as to minimize the sacrifice of possible ultimate recovery which is apparently necessary in accomplishing this price stabilization. If a sacrifice of ultimate recovery is considered justified by the economic advantages of a stabilized price structure, methods of allocation should be based upon some principle involving an equitable apportionment of the losses of ultimate recovery this occasions."

The committee will leave Thursday for the Texas Panhandle, making an automobile tour of the gas fields before resuming their journey to California for a continuation of the hearings.

Allred's Position

Governor-Elect James V. Allred notified Chairman Cole of the committee that in his opinion no necessity exists for legislation giving the Federal Government the power and duty of controlling oil production in Texas.

The incoming governor announced that in his administration he will follow strictly the state democratic platform opposing "Federal encroachment."

The message is construed by many as an indirect answer to Secretary of the Interior Harold L. Ickes who told the American Petroleum Institute that unless conditions are corrected the Federal Government may declare oil a public utility and take charge.

Mr. Allred's message was in connection with one welcoming the congressional committee to the State and explaining that previous engagements will prevent his appearing personally before the committee.

After quoting the democratic platform, Governor-Elect Allred said in his telegram:

"My action as governor of Texas with reference to the matters under consideration by your committee will be governed by the expression of the will of the democracy of Texas. I am opposed to the enactment of Federal legislation of any type expressed in the Thomas-Disney bill. It is my opinion personally that no necessity exists for the passage of legislation which attempts to give the Federal Government the power and charge it with the duty of controlling production of crude petroleum within the boundaries of the State; secondly, that the State of Texas is fully capable of policing its own internal affairs with reference to the proper control of production of oil.

"In this connection, I assure you that as the next governor of Texas I shall stand ready at all times to recommend to the legislature and assist in the passage of such effective measures as may be necessary to insure the power of the State to adequately control and regulate the production of oil and to stamp out illegal and unfair practices.

"Thirdly, after mature consideration and careful study I am convinced that the proposed or any other legislation which by its terms seeks to confer on the Federal Government the right to regulate production within the borders of the sovereign State of Texas is unconstitutional. It is, therefore, my sincere hope that your investigation into the facts and the law will cause you to make recommendations that such drastic, unnecessary and unconstitutional legislation be not enacted by Congress."

Divergent Views Developed at Oklahoma City Hearing of Cole Oil Committee

At the congressional committee hearing held in Oklahoma City Monday, Tuesday and Wednesday of last week, Frank Phillips of the Phillips Petroleum Co. said:

"After sitting in with leaders of the oil industry for more than 10 years, considering the ills and abuses of the industry, I am fully convinced that we are wholly incompetent to solve our own problems by voluntary agreements or under existing agencies. Price cutting, chiseling and unfair trade practices are more prevalent today than at any other time during my career of 30 years in this business. Agreements mean nothing. Some of those who are most active in promoting these agreements are violators.

"There never was a time in the history of the oil business when companies were doing as great a volume of business with the public as now. In fact, this volume is at the peak for all time; yet in many instances the more business done the more money lost. I speak particularly of the marketing branch of the industry. Our costs are higher because of the NRA. It costs my company approximately $4,000,000 more annually for labor on the same volume of business now than ever before.

"Price cutters and chiselers, generally speaking, are not observing this code, while the major companies are, generally speaking, observing them. This means an additional burden on companies like mine. Never has there been a time in this industry when conditions were as chaotic as now. It would take too long a brief to explain all of the abuses now existing."

Chairman Cole: "Have you always felt the way you have just expressed yourself as to what was needed to stabilize the oil business?"

"No, but it has been growing on me for years and the results of recent months shows the impossibility of the industry getting together otherwise."

Mr. Cole inquired why Mr. Phillips wanted governmental control for oil and not other resources.

"The great difference in oil—it must be operated differently—and the theory of public necessity. It is hard to control. It is a $15,000,000,000 industry; there is not a single strong man in it today big enough to set up a program without some compulsory regulation to back him up. The railroads are prospering because of the Interstate Commerce Commission. The banks function because of the Federal Reserve Act, and I believe the oil business would again become well under control of a strong governmental agency.

"We must have a government commission of from five to seven practical oil men, appointed by the President, with power to actually enforce any rules formulated. This must be a nonpolitical commission, appointed for life or at least for a long term. If such a program could not now be provided under present laws you should undertake to have a new law providing for such a commission in the interest of the public as well as this great basic industry."

Mr. Phillips explained that his company and others were losing money rapidly through being forced to guarantee jobbers a certain definite amount for handling their products under the code. These requirements were due to price cutting and gasoline wars. He told of breaking up a war and how the chiselers tried to have him indicted, when the code sanctioned the meeting of a price by competitors.

Mr. Phillips told Congressman Wolverton he felt the new oil commission could not only regulate production of oil, but determine what price should be charged for gasoline. Such a plan would be on the basis of basic and regional costs.

"What do you think of the President's suggestion of April 4, 1933, for a divorcement of pipe lines," asked Mr. Wolverton.

"I never heard of it but I'm opposed to it. In fact, I think it would be disastrous to the industry. Pipe lines could be regulated."

Mr. Wolverton inquired why the leaders have not come forward with a program.

"They want the industry covered by agreements, and these do not mean anything."

"But who makes these agreements? Aren't the companies responsible, and can't you leaders get along together?"

"Yes, we get along and we are friends; we love each other, but we all watch ourselves when we get alone in the dark."

C. C. Herndon, executive vice presi-

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A.P.I. Directors Vote Against Federal Control of Petroleum Industry

By ANDREW M. ROWLEY

The fifteenth annual convention of the American Petroleum Institute, held last week in Dallas, was a record breaker in more ways than attendance. The directors took a definite stand in the matter of Federal legislation, recommending an interstate compact and voting against a substitute or minority resolution which favored a modified Thomas-Disney bill.

More informal conferences were held at this convention than at any other because everyone was interested in the question of Federal legislation; the situation in East Texas; the gasoline buying program; and the general outlook. And practically every person in a position to give the latest developments in every phase of present activities was in Dallas. In addition to the Institute's officers and members of the staff, all but one or two members of the Planning and Coordination Committee were at the convention with part of its staff personnel so this committee held meetings and transacted its business in Dallas. A majority of the membership of the Petroleum Administrative Board was in Dallas with others connected with this organization, giving many oil men their first opportunity to size up the personnel of the Government's bureau which has been running the $15,000,000,000 oil business.

Congressional Committee Present

And, on the last day of the convention the five members of the subcommittee of the Interstate Commerce Committee of the national House of Representatives came to Dallas preparatory to the opening of the hearings held there starting last Friday and those at the convention had an opportunity to meet members of this committee which will present its recommendations at the forthcoming session of Congress in the matter of whether additional legislation affecting the petroleum industry is or is not necessary.

Oil men were most favorably impressed by the personnel of the congressional committee. The keen insight displayed by these men on matters affecting the petroleum industry; their lack of arrogance; their mature business sense and judgment; and their general attitude were refreshing, especially to the many attending the convention who had had close contact with the bureaucracy built up in Washington to handle affairs of the oil industry.

Fayette B. Dow and Axtell J. Byles

While the resolution favoring an interstate compact was passed by the board of directors of the Institute by a vote of 42 to 17, this does not mean all of the 17 who voted against it were opposed to its provisions. Henry M. Dawes, president of the Pure Oil Co. and a director, explained to the congressional committee in Dallas on Friday that while he voted against the majority resolution, which was adopted, he favored each and every one of its provisions. He said his negative vote simply meant he preferred the minority resolution. The resolution adopted by the board of directors of the Institute follows:

Resolution on Interstate Compact

"Pursuant to the request of the congressional committee that the directors of the American Petroleum Institute make appropriate recommendations and with the desire to be of assistance to the committee in its deliberations, we recommend:

"1. That Congress give its consent to the formulation by the principal oil producing states of an agreement, or interstate compact, for conserving their petroleum resources.

"2. That the principal oil producing states promptly formulate a compact for this purpose.

"3. That the compact should provide for Federal co-operation with the states in the investigation and determination of the reasonable consumptive demand for current petroleum production after taking into account importations, exports and withdrawals from storage; and in recommending proper allocation of the total as between the various oil producing states, consistent with the provisions of such interstate compact.

"4. That the Federal Government should, under its power to regulate commerce among the states, prevent the shipment in interstate or foreign commerce of crude oil produced in violation of state law, or the refined products thereof.

"5. That the Federal Government should so regulate the importation of crude oil, or refined products, as to balance production with consumer demand. Imports should be regulated to some percentage relationship to domestic production so long as this is necessary to effect the balancing of supply and consumption.

"(Signed by) Oscar Sutro, W. S. Farish, George A. Hill, Jr., H. F. Sinclair, F. A. Leovy, J. Howard Pew, and C. B. Ames, chairman."

The Minority Resolution

The minority report presented by Judge Amos L. Beaty and Wirt Franklin, which was supported by 17 directors, follows: "Resolved, by the board of directors of the American Petroleum Institute in annual meeting assembled at Dallas, Tex., this the fourteenth day of November, 1934, that we endorse and approve the principles and policies regarding Federal legislation affecting the oil industry heretofore enunciated by the Planning and Coordination Committee and released in a statement to the industry under date of October 12, 1934, as follows:

W. R. Boyd, Jr., E. G. Borden of Henry L. Doherty Co., New York; W. N. Davis, Phillips Petroleum Co., Bartlesville and Arthur Hartigan, Filtrol Co., New York, at the oil men's barbecue at Teague, Tex.

"Twenty-one members of the committee were present at meetings this week. The present serious conditions in the industry were discussed and several movements were put on foot to bring about better conditions. Today the committee conferred with Administrator Ickes for two hours and the administrator was fully informed as to the views and plans of the committee.

"In regard to Federal legislation differences between members of the committee have been reconciled. Those supporting the state compact plan have agreed to support the Thomas-Disney type of legislation with a provision authorizing state compacts and other changes as follows:

"Insert provisions in Thomas-Disney bill authorizing any two or more states under appropriate state legislation to enter into compact for the restriction of crude oil production in the signatory states, subject to the condition that the total allowed production for all the signatory states combined shall not be more nor less than the total production demand for such states combined as determined under the Federal act.

"Provide further that so long as the production of any state is kept within the compact figures for such state, or, if the state is not signatory to such compact, then within the production demand figure for the state, as fixed under the Federal act, no quotas shall be set for the state or for application within the state, but if in any calendar month any state shall exceed its compact figure, or, in the absence of compact, its production demand figure as fixed under the Federal act, then upon order of the President or with his approval, quotas shall be set for such state and for pools, properties, etc., within the state, as provided in the Federal act, until the President finds that necessity no longer exists and orders discontinuance of the practice.

"Change the administrative sections so that the board will be composed of the Secretary of the Interior as chairman and four or six other members to be appointed by the President, consisting of men experienced in the oil business and otherwise qualified, from the oil producing states, the appointments to be distributed so that as nearly as may be practicable each principal oil producing section will be fairly represented.

"No time limit in view of the automatic operation.

"All of this is subject to the completion of a satisfactory draft of the bill."

C. H. Kountz, Chairman of Board, Sinclair Prairie Pipe Line Co.

Ickes' Address High Spot

The high spot of the convention in point of interest was reached Wednesday afternoon when Harold L. Ickes, Secretary of the Interior and oil administrator, delivered his address. Lack of facilities prevented all those desiring to hear the address to crowd into the room where the administrator spoke, but the oil men took copies of the address to their rooms and read it carefully.

The reaction to the address of the Federal administrator by the oil industry so well represented in Dallas was not favorable. Many oil men pointed to the inconsistency of the administration's ordering the petroleum industry to solve its own problems when at the same time the industry has hanging over it the threat of collusion and court and criminal action if it did get together around a table and formulated plans which would do away with those things which prevent profitable operation.

They also cited numerous instances where long delays were encountered in getting approval from the Petroleum Administrative Board for recommendations made in efforts to stabilize conditions.

Secretary Ickes' threat that "the Federal Government may conclude that it is its duty to consider declaring the oil industry to be a public utility" certainly did not set well with the oil men. They

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Wake Up!

—Drawn exclusively for The Oil and Gas Journal

became vehement at the thought of having their business run by inexperienced bureaucrats. Mr. Ickes' statement at a press conference, prior to making his address, to the effect he favored one man and not a commission in operating a business, left no doubt in the minds of oil men that the industry is threatened with a dictatorship.

The address of the oil administrator and his statement to the press were factors in solidifying opinion within the petroleum industry, as represented at Dallas, that even a mild form of Federal control, if there were such a thing, is highly undesirable and should be opposed vigorously by every branch and element of the business.

On the other hand the address of President Byles in opposing Federal control in any form whatsoever made a distinctly favorable impression and a majority of those attending the convention seemed definitely of the opinion so well expressed by Mr. Byles in his address on Tuesday. (The addresses of Mr. Byles and Secretary Ickes were published in the November 15 issue of The Oil and Gas Journal.)

Against Federal Control

Informal discussions throughout the period of the convention indicated conclusively that the petroleum industry does not favor Federal control of the business. Many who previously had supported the Thomas-Disney bill stated they now are strongly opposed to that measure or any other measure which would place the Federal Government or any agency of the Federal Government in control of any branch of the oil business. They gave as reasons for their change in views the fact that when the Thomas-Disney bill was proposed it appeared at that time as the best remedy available but that experience has shown the inconsistency and futility of bureaucratic administration

J. W. Van Dyke, Chairman of Board, Atlantic Refining Co.

and that they now are convinced any legislation adopted by Congress which would give the Federal administration any sort of control over any phase of the business would result quickly in regimentation of the entire industry.

Axtell J. Byles was re-elected president of the Institute and other officers for 1935 were selected by the board of directors as follows:

Vice president at large, K. R. Kingsburg, Standard Oil Co. of California; vice president for production, George A. Hill, Houston Oil Co., Houston, Tex., to succeed Charles A. Roeser, of Fort Worth, Tex.; vice president for refining, W. G. Skelly, Skelly Oil Co., Tulsa, to succeed Howard Bennette, of Tulsa; vice president for marketing, C. E. Arnott, Socony-Vacuum Oil Corp., New York, re-elected; executive vice president, W. R. Boyd, Jr., of New York, re-elected; treasurer, Frank Phillips, Phillips Petroleum Co., Bartlesville, Okla., to succeed H. L. Pratt, of New York; secretary and assistant treasurer, Lacey Walker, of New York, re-elected.

The board reappointed the following executive committee: The newly elected officers, and C. B. Ames, the Texas Co.; W. C. Teagle, Standard Oil Co. (New Jersey); H. F. Sinclair, Consolidated Oil Corp.; E. G. Seubert, Standard Oil Co. (Indiana); J. C. van Eck, Shell Union Oil Corp.; F. A. Leovy, Gulf Oil Corp. of Pennsylvania, and J. Howard Pew, Sun Oil Co.

The following committee on membership was appointed:

O. D. Donnell, chairman, Ohio Oil Co., Findlay, Ohio; R. A. Broomfield, Barnsdall Oil Co. of California, Los Angeles, Calif.; Wirt Franklin, Wirt Franklin Petroleum Corp., Oklahoma City, Okla.; E. B. Reeser, Barnsdall Corp., Tulsa,

W. H. Francis, vice president, Magnolia Petroleum Co.

and D. E. Buchanan, Hanlon-Buchanan, Inc., Tulsa.

The executive committee created the office of assistant secretary of the Institute and selected J. S. Cooke, secretary to Mr. Boyd, to fill that position.

Midyear Meeting to Tulsa

The executive committee selected Tulsa for the Midyear meeting of the Institute. This meeting, which usually is held in May, is devoted to the business of the three divisions of the Institute, production and transportation, refining and marketing, and it rivals the annual convention in the papers presented at the various group sessions and the discussions on matters relating to the work of the different branches of the business. The executive officers of the Institute will decide later on the date of the meeting and also on the date of the convention to be held next year in Los Angeles.

Establishment of exchanges to deal in crude oil was opposed in the following resolution adopted by the directors of the Institute. "Whereas, proposals to organize and operate exchanges to deal in crude oil are being discussed, and

"Whereas, it is believed that crude oil cannot economically or practically be made the subject of exchange dealings and that any attempt to operate an exchange would become a speculative enterprise with the actual business of buying and selling oil continuing outside as presently conducted and that, therefore, any attempted exchange would be harmful rather than helpful to the petroleum industry, therefore,

"Be it resolved that it is the opinion of the board of directors of the American Petroleum Institute that transactions on a petroleum exchange would not be a valuable index of crude oil values and that, therefore, no such exchange should be organized, attempted or supported by those engaged in the petroleum industry."

There was some feeling evident at the convention that formation of an exchange to deal in gasoline might have more widespread appeal and probably could operate successfully. Eastern oil men stated they believe an oil exchange will be opened, probably in New York, in the near future.

Safety Awards

Awards were made at the convention to 11 oil companies whose efforts to prevent accidents and in keeping accident records enabled the industry to show a 1933 accident experience record 12 per cent better than the all-industry average.

The comment was made, in presenting the awards, that the petroleum industry has improved its position from 18 per cent worse than the all-industry average in 1927 to its present position, and that in 1933 a total of 128 companies reported records covering 274,294 workers, computed according to NRA working schedules, with only one man out of each 36 injured so severely he lost one or more days of work. In 1927 the injuries averaged one to each group of 11 workers.

The certificate for the "all department award" was given this year to the Standard Oil Co. (Indiana), whose pipe line and marketing departments took first place in their respective groups, with the production and refining departments taking second place, and the natural gasoline department in fifth place. The company's accident severity average was only seven-tenths of one day lost time for each 1,000 hours worked as compared with one and nine-tenths days for the industry.

Department awards were made as follows: Refining, Vacuum Oil Co., New York, and Lincoln Oil Refining Co., Findlay, Ohio; marketing, Standard Oil Co. (Indiana), Chicago, and Waggoner Refining Co., Electra, Tex.; production, Continental Oil Co., Ponca City, Okla., and Chanslor-Canfield Midway Oil Co., Los Angeles, Calif.; natural gasoline, Lone Star Gasoline Co., Dallas, and Shell Oil Co., San Francisco; pipe line, Stanolind Pipe Line Co., Tulsa, and Ajax Pipe Line Co., Tulsa; and marine, the Texas Co., New York.

Division Committee Members

The divisions of production, refining, and marketing elected 20 members of their respective general committees to serve during 1935. In addition President Byles appointed five members of each di-

Eugene McElvaney, vice president First National Bank of Dallas and Capt. J. F. Lucey, chairman Dallas committee for A.P.I. convention

visional committee. Following are the new committees:

Division of Production: Appointed by President—D. E. Buchanan, Hanlon-Buchanan, Inc., Tulsa; O. D. Donnell, Ohio Oil Co., Findlay, Ohio; Ralph B. Lloyd, Oil Producers Sales Agency of Los Angeles; J. Edgar Pew, Sun Oil Co., Philadelphia; and E. L. Smith, E. L. Smith Oil Co., Mexia, Tex.

Elected by Division—A. M. Blow, Amerada Petroleum Corp., Tulsa; C. P. Dimit, Phillips Petroleum Co., Bartlesville; J. P. Jensen, Associated Oil Co., Los Angeles; B. B. Johnston, Simms Oil Co., Dallas; C. H. Lieb, Carter Oil Co., Tulsa; D. A. Little, Magnolia Petroleum Co., Dallas; M. E. Lombardi, Standard Oil Co. of California, San Francisco; R. W. McIlvain, Pure Oil Co., Chicago; W. L. McLaine, General Petroleum Corp. of California, Los Angeles; E. J. Nicklos, Continental Oil Co., Ponca City; W. M. O'Connor, Atlantic Refining Co., Philadelphia; R. Ogarrio, the Texas Co., New York; H. L. Phillips, Sinclair Prairie Oil Co., Tulsa; F. O. Prior, Stanolind Oil & Gas Co., Tulsa; J. H. Russell, Gulf Production Co., Houston; E. H. Salrin, Tide Water Oil Co., Tulsa; H. R. Straight, the Empire Companies, Bartlesville; J. R. Suman, Humble Oil & Refining Co., Houston; T. E. Swigart, Shell Petroleum Corp., Houston; and W. K. Whiteford, Barnsdall Oil Co., Tulsa.

Refining Division

Division of Refining: Appointed by President—W. M. Irish, The Atlantic Refining Co., Philadelphia; P. M. Miskell, Empire Oil and Refining Co., Tulsa; D. J. Moran, Continental Oil Co., Ponca City; J. Howard Pew, Sun Oil Co., Philadelphia; and W. S. S. Rodgers, The Texas Co., New York.

Elected by Division—L. S. Bale, Standard Oil Co. of Ohio, Cleveland; Howard Bennette, Western Petroleum Refiners Association, Tulsa, C. B. Buerger, Gulf Refining Co., Pittsburgh; W. F. Burt, Socony-Vacuum Corp., New York; F. B. Dow, National Petroleum

Richard Airey, Asiatic Petroleum Co. and J. C. Van Eck, Shell Union Oil Corp.

Association, Washington, D. C.; Jacob France, Mid-Continent Petroleum Corp., Tulsa; R. H. Hanna, Jr., Standard Oil Co. of California, San Francisco; C. L. Henderson, Vickers Petroleum Co., Wichit; F. E. Holsten, Barnsdall Refineries, Inc., Tulsa; John Kane, Phillips Petroleum Co., Bartlesville; Emby Kaye, Skelly Oil Co., Tulsa; E. R. Lederer, Texas Pacific Coal & Oil Co., Fort Worth; H. A. Logan, United Refining Co., Warren, Pa.; M. D. Paulus, Standard Oil Co. (Indiana), Chicago; J. N. Robinson, Tide Water Oil Co., New York; Chester Smith, Standard Oil Co. (New Jersey), New York; W. L. Stewart, Jr., Union Oil Co. of California, Los Angeles; George Taber, Sinclair Refining Co., New York; C. B. Watson, Pure Oil Co., Chicago; and G. H. Van Senden, Shell Union Oil Co., New York.

Marketing Division

Division of Marketing: Appointed by President—W. H. Ferguson, Continental Oil Co., Denver; E. T. Moore, Simms Oil Co., Dallas; E. B. Reeser, Barnsdall Corp., Tulsa; C. L. Suhr, The Pennzoil Co., Oil City, and J. C. Van Eck, Shell Union Oil Corp., New York.

Elected by Division—W. T. Atkins, Skelly Oil Co., Tulsa; W. C. Burns, Richfield Oil Co., New York; J. W. Carnes, Sinclair Refining Co., New York; H. D. Collier, Standard Oil Co. of California, San Francisco; J. D. Collins, Tide Water Oil Co., New York; H. W. Dodge, The Texas Co., New York; S. B. Eckert, Sun Oil Co., Philadelphia; Frederic Ewing, Socony-Vacuum Co., New York; H. D. Frueauf, Cities Service Co., New York; W. V. Hartmann, Gulf Refining Co., Pittsburgh; C. N. Humphrey, Standard Oil Co. of Nebraska, Omaha; Allan Jackson, Standard Oil Co. (Indiana), Chicago; V. H. Kelly, Union Oil Co. of California, Los Angeles; R. D. Leonard, The Atlantic Refining Co., Philadelphia; R. W. McDowell, Mid-Continent Petroleum Corp., Tulsa; G. C. Morris, Pure Oil Co., Chicago; C. G. Sheffield, Standard Oil Co. (New Jersey), New York; C. S. Smith, National Refining Co., Cleveland; H. A. Trower, Phillips Refining Co., Bartlesville, and W. G. Violette, Standard Oil Co. of Kentucky, Louisville, Ky.

Final registration of the convention was 3,125, exceeding by 927 the previous record made at Chicago in 1930.

Approximately 1,500 oil men and friends of W. R. Boyd, Jr., attended a barbecue on Friday at Mr. Boyd's lodge near Teague, Tex.

Natural Gasoline Plant Employs Modern Methods Profitably to Process Lean Gas

By NEIL WILLIAMS
Gulf Coast Bureau, The Oil and Gas Journal

HOUSTON, Tex., Nov. 20. — Operation of a gasoline plant on ultra lean gas is being done successfully by the Nueces Refining Co. in the Aqua Dulce Field, Nueces County, lower Gulf Coast district, of Texas. Stripped at the wells of the major part of its fluid content, the gas received at the plant has a content of only 0.15 to .25 gallon per 1,000 feet. Under ordinary circumstances this might be considered too dry for profitable extraction of the gasoline.

Several factors make possible and practical the operation of this plant and the extraction of the gasoline from gas that lean. The first of these no doubt is the large volume of gas available but supporting this and of no small consequence is the high degree of efficiency which has been obtained by the installation and operating practices. Of especial note is the fact that in the design of the plant every consideration was given to the conservation and utilization of heat, steam and cooling medium.

Gasoline at Well

The plant at this time is running on approximately 40,000,000 feet of gas daily, supplied by eight wells and received at the plant under a pressure of 370 pounds. Wells in the Aqua Dulce Field usually carry relatively high pressures, being around 1,250 pounds on the tubing and from 1,500 to 1,700 pounds on the casing. At the wells, about 450 bbls. of fluid, which consists of a light distillate of around 60 gravity A.P.I., is trapped off from the gas. That is run separately through a small topping unit operated in conjunction with the gasoline plant, leaving the absorption plant to run on the stripped and relatively dry gas.

In the topping of the above distillate, approximately 95 per cent is recovered as gasoline and 3 per cent as naphtha. The remaining 2 per cent is lost in distillation. The above percentages, however, naturally can be varied to some extent to meet requirements for a particular grade of gasoline or naphtha. The gasoline yield is a 64-66 400 endpoint motor fuel with an octane rating of 63-65. The naphtha is 44 gravity, particularly adaptable for tractor fuel or the making of special naphthas.

Use is made of part of the naphtha as the absorption oil in the gasoline plant. This has eliminated the need of Mineral Seal or other special absorption oils and has proved very satisfactory and is an important factor in the commercial operation of the plant. In the absorbers the gravity of the naphtha drops from 44 to between 37 and 38 A.P.I. but the endpoint of the natural is not affected.

Another important saving made in operation of the gasoline plant is in fuel costs and water requirements. A closed steam system has been provided in which all exhaust steam from pumps, preheaters and stills is collected, condensed and recycled. High pressure steam is run to a high pressure accumulator located in the boiler house while low pressure steam is cycled through a hot well to the boilers. By the prevention of any escape of steam all water is retained in the system and only a small amount of new water is needed to replenish the supply. The recycling of the condensed steam provides a constant supply of hot water for the boilers without preheating which minimizes fuel requirements.

The closed steam system also is of particular advantage in eliminating the necessity of treating boiler water. Good water in that district is limited and if the boilers were fed by a continuous new supply of water, treatment would be required, increasing the operating costs of the plant.

A closed system also has been provided for other water used around the plant. Water heated in various phases of plant operation is pumped in a continuous cycle through a series of horizontal cooling coils in the base of the water tower and then back to the plant. Thus the same water is used over and over again and the supply only occasionally has to be augmented, which, as in the case of the boiler feed water, is an important consideration as the water obtained in the field is not desirable.

Well Water Available

The cooling medium, however, is water from a well located inside the cooling tower. The latter was built around the well, from which the cold water is jetted by gas to the top of the tower and allowed to spray down over the coils to the bottom, and then to run off. Also in the base of the cooling tower are the condensing coils, one for vapors from the topping unit and another for vapors from the absorption plant, and also the cooling coil for the hot lean absorption oil from the still. The coils, which are made of noncorrosive metal, are not affected by the well water sprayed down over them.

Central Cooling System

By the above concentration of all condensing and cooling coils in the base of the one water tower, one operation does all the condensing of vapors and cooling of hot oils and hot water, and although it is simple it is adequate and does away with the necessity of installation of special condensing equipment, which would require additional water circulating systems.

The entire plant embodies some of the most modern equipment and methods. In the operating cycle, the gas from the field is directed into the absorption tower under pressure of 370 pounds, where the gas coming in contact with the naphtha absorption oil is stripped of its gasoline content and passes off the top, into a scrubber, and from there to the vent line. A relief valve on this line controls and maintains the constant desired back pressure on the absorption tower.

The fat oil from the absorber is taken from the bottom into an adjoining accumulator where a vaporization of some of the lighter fractions takes place, these passing off the top into a reabsorber, or pup still. The fat oil with the unvaporized ends leaves the bottom of the accumulator to be circulated through the heat exchangers into the still. The hot lean oil from the still serves as the medium of heat exchange for the incoming cold oil.

From the absorber to the still there is a drop in pressure from 370 pounds to 40 pounds. This pressure is held constant by a relief back pressure valve on the vent line from the small accumulator tower of the reabsorber. This back pressure maintained by the relief valve has eliminated the necessity of a recompressor, which ordinarily is used to hold the pressure the same on the system and the stabilizer. This is another factor in the economical and efficient operation of the Agua Dulce plant.

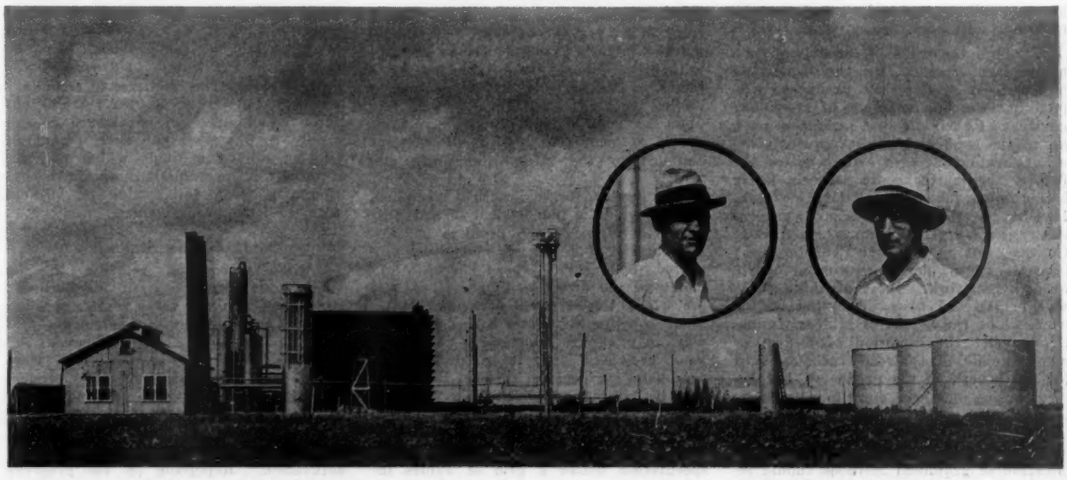
A temperature of 340 degrees is maintained in the still in which the gasoline fractions are vaporized and pass off into the dephlegmator. Temperature at the top of the latter is kept at 210 degrees. A small stream of gasoline is injected as reflux. The raw natural before stabilization runs around 35 pounds vapor pressure and in the latter operation the pressure is reduced to market requirements of 14, 16, 18, 20, 22, or 26 pounds.

High Test Gasoline

The hookup of the small topping unit and the absorption plant is such that the gasoline stream of the former can be run with the raw natural through the stabilizer, if desired. If this is done a high test gasoline running 68-70 375 endpoint with an octane rating of 67-70 is produced. The topping plant consists of a steam heated still, operated at a temperature of 350 degrees and a pressure of 150 pounds, and a dephlegmator. Before entering the still the charging stock which, as previously mentioned, is a 60 gravity distillate, passes in a steam preheater.

Control and operation of the plant is entirely automatic with all control instruments centralized at one board.

The Nueces Refining Co. is owned by the Garland Clymore interests of Corpus Christi. Ralph Wyrick is superintendent of the plant; W. R. Hounsell, chief chemist; and L. R. Wagstaff, construction foreman.



Natural gasoline plant of the Nueces Refining Co. in the Agua Dulce Field, Nueces County, Texas. Inserts: (left) L. R. Wagstaff, construction foreman and (right) W. R. Hounsell, chief chemist

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PIPE FOR WICHITA FALLS LINE

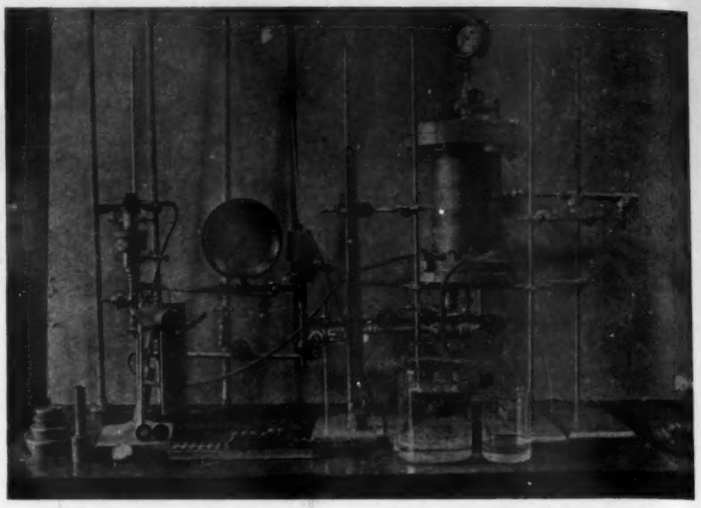
WICHITA FALLS, Tex., Nov. 19.—The Wichita Falls Gas Co. has purchased approximately 35 miles of pipe to be used in beginning the construction of a distribution system here and a pipe line to whatever field is chosen as a source of supply, according to information given by W. S. Cooper of Kansas City, president of the company, who was in Wichita Falls this week to confer with city officials.

Mr. Cooper expressed hope that actual construction work would begin about January 1 in order to have the system completed and ready to give domestic and commercial service to Wichita Falls by next winter.

The company was granted a franchise with the provision that gas for domestic consumption would be furnished in Wichita Falls at a cost not to exceed 40 cents per 1,000 feet.

Graphical Method for Benefit of Pennsylvania Grade Producers

By ROBERT C. CONINE



The cleaned sandstone samples are tested for permeability in this "permeameter". Compressed air or distilled water are used in the flow tests

STATE COLLEGE, Pa., Nov. 19.—Don't be surprised if some day one of the old timers in the Pennsylvania Grade crude oil region starts talking "potential theory" to you. You may be an expert on the mechanics of fluid flow in oil sands, and in that case you may or may not stare skeptically when he explains that he has been provided with a graphical method of solving problems related to operation of primary or secondary leases. It depends on whether or not you were among those who scoffed when the magnetometer and torsion balance took the field, and when the Gulf laboratories at Pittsburgh, the Colorado School of Mines, and individual investigators applied graphical methods in calculations with these instruments.

Although the work of developing such a graphical method for the benefit of hundreds of grade crude producers who feel that the best methods of secondary recovery at their disposal leave too much oil in the sand and not infrequently develop inexplicable contrariness is for the future, the matter could scarcely be in better hands than those of Dr. Gerald L. Hassler, of the petroleum and natural gas research staff at Pennsylvania State College, who as a member of the Gulf laboratory staff developed similar charts for gravity work. Most of this article will be devoted to a discussion of the work which the School of Mineral Industries, under the direction of Dean Edward Steidle, has already accomplished for the benefit of the producers, but before passing on to the more familiar matters of sand and oil physical properties as determined in the laboratory and related to lease operations, the possible application of graphical methods should be discussed briefly to indicate the extent to which "dry research" is justified in terms of material benefits.

Grid of Values

Doctor Hassler's object, if it may be stated in simple form, is to obtain a grid of values, these values representing the effect of the permeability variation on the flow. When this grid of values has been worked out for an oil producing lease, a chart, not unlike those used in gravity and magnetometric problems, can then be set down on this grid which will calculate the actual flow at the central point of the chart which is the result of the input wells, output wells and permeability throughout the sand.

The "chart" used in similar calculations is a transparent sheet of celluloid marked radially (from center or margin) with lines which are intersected by a series of successively widening arcs or circles, so that when the chart is laid upon a "grid of values" little remains except to "count the dots" in the sections bounded by the intersecting lines and arcs.

The search for a practical graphical method which is independent of any analytical solution of the problem of flow for parallel line sources and sinks separated by media whose permeability varies in the direction of the lines, and for which the strength of source varies along the line source in a discontinuous way, may appear hopeless to those who have not kept abreast of progress in petroleum engineering. Others will agree that it may be possible to draw tentative lines of equal pressure, using Faraday's "line of flow" concept for intuitive guidance, and then checking this tentative speculation (after a grid of values involving known permeability and the assumed pressure has been prepared) with a surface chart such as previously described. A succession of applications, or approximations, each eliminating errors in the original tentative solution or speculation, might then, if carried far enough, result in a perfect solution.

At this time, naturally, it is impossible to say whether Doctor Hassler's work will result in greatly simplifying many of the baffling problems faced by operators using water flood or air and/or gas repressuring methods of secondary recovery, but it does appear certain that these researches will contribute considerably to the eventual development of problem-solving methods which will determine for the smallest operator the optimum position for setting of packers with the least preliminaries.

Properties Studied

Little information relating to the fundamental properties of oil bearing sands was available three years ago when research workers in the petroleum and natural gas department, headed by Profs. A. W. Gauger and C. A. Bonine, began their investigations. The properties selected for particular study were the porosity, screen analysis, the physical, chemical and mineral composition, permeability, and the hybrid one of oil saturation. Reporting on the progress of their work, Drs. G. H. Fancher, J. A. Lewis and K. B. Barnes stated that "a complete knowledge of these factors and their relationships enables the producer to answer such questions as how much fluid will the sand hold, at what rate will it take fluid (or air and/or gas), are certain strata thief sands, are others impermeable, where should the packers be set, what pressure is best to use, how much oil and gas is in the sand, how rapidly can it be produced and what will be the yield."

These investigators pointed out that several objectives had been sought in these studies: The first, to refine clearly each property discussed, to eliminate misleading ideas concerning it; second, to develop or investigate accurate methods for measuring the property and thus accumulate reliable data, and third, to demonstrate in some measure the use and utility of the properties in order to make the results of practical benefit to the producer. Permeability, they said, is a measure of the fluid conductivity of a solid; porosity, the fluid capacity of a solid. They conducted scores of tests, obsolete and modern, for the various properties and evaluated each method on a basis of simplicity, expense, accuracy and time required. Their data emphasized the fact that there is no direct and simple relation between porosity and permeability. The generalization that the sand is more permeable with the bedding plane than across it was proven untrustworthy, and the importance of gravity flow in oil sands was stressed. Hydration and consequent swelling of clay in the sand was proposed as a possible explanation for the discrepancy in the value of the permeability of an oil sand when measured with water as compared to that obtained with air.

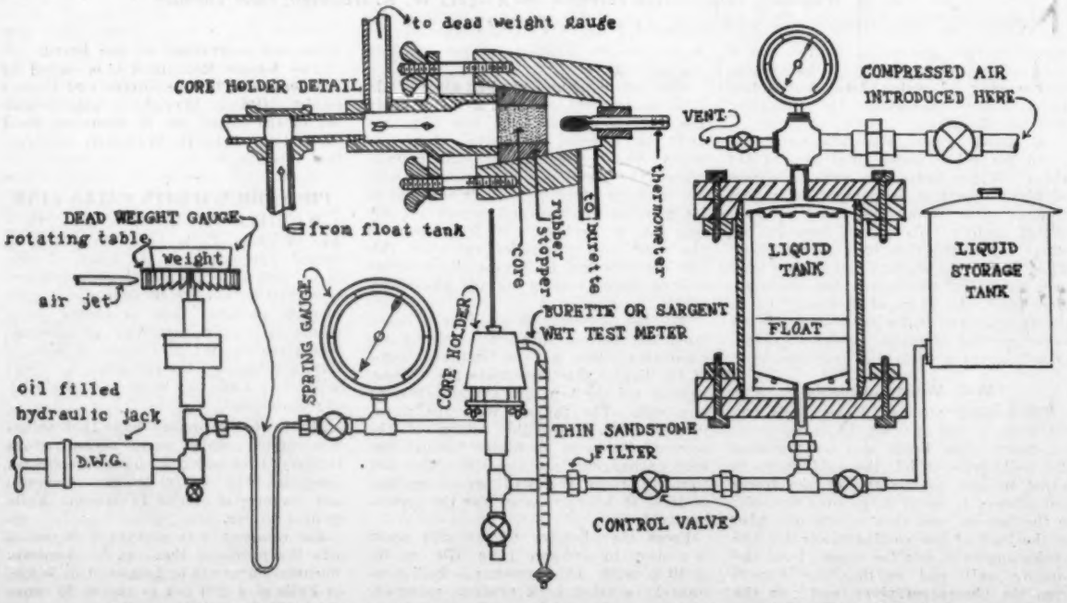


Fig. 1—Diagrammatic sketch showing arrangement of permeameter and detail of core holder

Permeability

Explaining the emphasis which the research department has placed upon their permeability investigations, Drs. Fancher, Lewis and Barnes report as follows: "It is evident that much information relative to the proper equipping of a well, as for example, the locations of the depth at which packers should be set and the determination of suitable pumping equipment is gained from a study of the results of core analysis. Furthermore, an understanding of the performance, past and future, of a well is obtained economically from core analysis. Likewise, it is evident that porosity analysis and the porosity profile, important as they are, cannot be substituted for permeability and the permeability profile without serious error in most cases. It is our firm conviction that permeability is one of the most important physical properties of a sand and to be considered in the production of oil, gas and water, and is of such fundamental significance

that it should be determined whenever possible.

"Any equation for the computation of flow conditions or the rate of production, of depletion, well spacing and the solution of drainage problems must include and contain a factor for permeability. The conclusion follows inevitably that not only is it desirable that all wells that are drilled should be cored and the cores analyzed according to accurate methods, but also that the results should be expressed in standard, universally understandable and accepted units and made

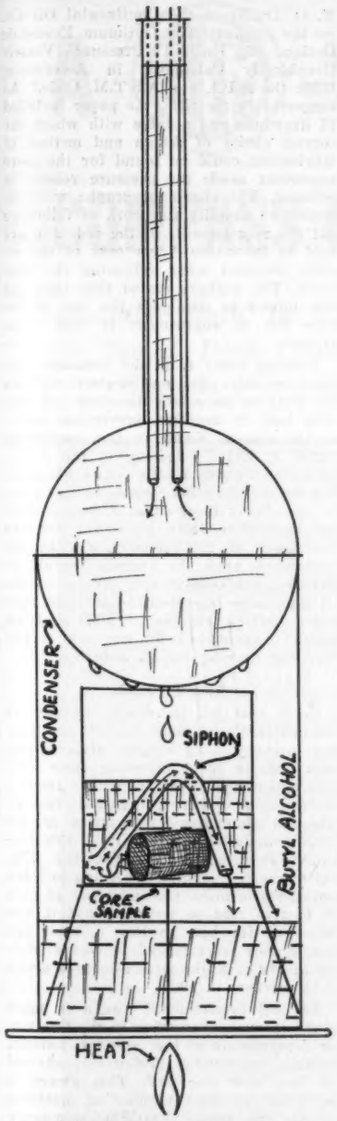


Fig. 2—Diagram of simplified extractor used in place of the usual Soxhlet apparatus

available to society's use just as are any other fundamental physical properties of materials."

Apparatus Used

Figure 1 shows diagramatically the apparatus devised for the accurate measurement of the permeability of consolidated sands and for which a dependable experimental procedure has been developed. The liquid tank is a tinned copper vessel equipped with a float to reduce possible contamination of the liquid by dust and dissolved air. This tank is held in a 12-inch nipple of 6-inch pipe carrying standard cast iron blank flanges at each end. From the liquid tank a brass flow line leads through the control valve (needle), and a thin sandstone filter to the deadweight gauge and holder, the latter delivering to a standard 25 millimeter burette. If air is used in place of a liquid for testing, the burette is replaced by a Sargent wet test meter or a calibrated orifice meter. The tank at the extreme right is used for storage of liquid. The core holder is shown in more detail. The sample of sandstone, cut to proper dimensions, is inserted in a bored No. 7 rubber stopper, which is then wedged tightly into the coreholder by means of the brass riser which is connected to the liquid tank. A tight fit is insured by means of thumb screws and stud bolts as shown. This method is held to be superior to such devices as gaskets, or seals of pitch, asphaltum, sealing wax, babbitt, type metal, or any such materials which contaminate, injure or seal the sample poorly. The rotating table noted in the diagram is held at the proper level for free rotation by adjustment of the hydraulic jack which is filled with a light lubricating oil. Compressed air from the jet shown rotates the weight table. The cross-sectional area of the plunger is one-ninth square inch so that the pressure per square inch on the face of the sample is nine times the pressure due to weights placed on the table. The spring gauge is used only to establish flow at a pressure approximately equal to that indicated by the deadweight gauge, with the valve between it and the manometer closed, after which this valve is opened and the needle valve adjusted until pressures on each side of the mercury in the manometer are equal. The deadweight gauge has been calibrated with manometers over its entire range. Compressed air to the 12-inch nipple holding the liquid tank is under 150 pounds pressure.

Permeameter

One of the steps in the preparation of core samples for testing in the "permeameter," naturally, is the extraction of the oil content. In this step saturation data are likewise obtained. The Soxhlet extractor has been used, generally, but here too the research department has contributed to simplification. Figure 2, shows a simplified form of extractor. The beaker which is to hold the core sample to be extracted is equipped with an "automatic" siphon which returns condensed extracting liquid and oil to the larger beaker. Heat is applied at the base of the larger beaker and vapors condense on the exposed surface of the water filled flask which seals the top of the larger container. When butyl alcohol is used to extract the oil, the mixture of oil and butyl alcohol is poured into a container filled with water. The alcohol dissolves in the water and the extracted oil is thus freed and may be collected in a separatory funnel. Doctor Hill is now running comparison tests on his new butanol saturation method, and his work on the calorimeter method of determining oil content is expected to be completed in about five weeks. The retort method is also used.

Administrator's Report on Crude Stocks

Stocks of domestic and foreign crude petroleum at the close of the week ended November 10 totaled 329,072,000 bbls., a decrease of 2,804,000 bbls. from the total of 331,876,000 bbls. on hand at the end of the preceding week, Harold L. Ickes, Secretary of the Interior and administrator of the code of fair competition for the petroleum industry, announced today. This decrease, which followed an increase of 930,000 bbls. over the previous week, comprised decreases of 2,775,000 and 29,000 bbls. in stocks of domestic and foreign crude, respectively.

According to current reports of the industry for the week ended November 10, in comparison with those for the previous week, both daily average crude oil production and runs to stills were approximately 2,415,000 bbls., indicating gains of 80,000 and 100,000 bbls., respectively. Daily average imports of crude oil amounted to 70,000 bbls., a material decline from the revised average of 176,000 bbls. for the week ended November 3. In general, these statistics reflected increased demand for crude, which usually occurs during the first half of each month as the producers and refiners attempt to run as much of their new quotas as efficient operation will permit.

CRUDE PETROLEUM STOCKS REPORTED BY COMPANIES HOLDING 100,000 BBLS. OR MORE

Grade of crude oil—	Stocks held by reporting companies Nov. 3, 1934 (bbls.)	Stocks held by reporting companies Nov. 10, 1934 (bbls.)	Change from Nov. 3, 1934 (bbls.)
Pennsylvania Grade	4,652,000	4,628,000	—24,000
Other Appalachian	1,125,000	1,099,000	—26,000
Lima-N.E. Indiana-Michigan	1,417,000	1,335,000	—82,000
Illinois-S.W. Indiana	11,453,000	11,401,000	—52,000
N. Louisiana and Arkansas	10,115,000	10,001,000	—114,000
West Texas and S.E. New Mexico	29,990,000	29,704,000	—286,000
East Texas	32,957,000	31,675,000	—1,282,000
Other Mid-Continent	156,017,000	155,898,000	—119,000
Gulf Coast	18,488,000	18,433,000	—55,000
Rocky Mountain	27,720,000	27,679,000	—41,000
California	34,947,000	34,253,000	—694,000
Total domestic crude	328,881,000	326,106,000	—2,775,000
Foreign crude	2,995,000	2,966,000	—29,000
To al crude	331,876,000	329,072,000	—2,804,000

Operations in Gas Fields of New York and Pennsylvania

WELLSBORO, Pa., Nov. 19.—The North Central Pennsylvania and Central New York gas field operations were comparatively quiet in the week ending November 16, while two completions were reported in the Speechley of Clarion County, Pennsylvania. Alum Rock Gas Co.'s Bank Lot No. 1, Highland Township, Clarion County, was completed for an estimated daily production of 166,000 feet at a depth of 2,085 feet, the pay being at 1,975-79 feet. The well took 387 sacks of cement. Same company got the top of the Speechley at 2,098 feet, in No. 1 Glass, Perry Township, same county, and got gas and considerable water 17 inches in the sand.

East Penn Development Co. is drilling at 3,505 feet on the Presbyterian Church test, Farmington Township, Tioga County, and at 3,825 feet on No. 1 Roscoe Kemp, same township and county. E. Cabot is drilling at 3,310 feet on the W. F. Burroughs farm, Gaines Township, same county.

Potter County

Hanley & Bird are down 5,626 feet on their No. 2 S. Gooch, Allegany Township, Potter County. P.P.&L. are drilling at 5,473 feet on their No. 1 Clair Doty, Hector Township, same county. Cunningham Natural Gas is shut down at 4,507 feet on its No. 1 George Carroll, Oswayo Township, same county. Stocum and others are drilling at 5,213 feet on the J. W. Wells farm, Allegany Township, same county, and Electro Geometer is shut down at 4,625 feet on the Katherine Currier farm, same township and county.

Hebron Field

Penn United is drilling at 4,317 feet on No. 1 Burt & Lyman, Hebron Township, Potter County. P.P.&L. is down 4,160 feet on Chloe Kenyon, same township and county. Lycoming is drilling at 2,010 feet on the W. B. Hemphill farm, at 3,065 feet on the W. White farm, at 4,315 feet on the O. W. Greenman farm, and at 3,350 feet on the R. and G. Carmer farm, all in Hebron Township. Potter Development Co. is still idle at its No. 2 Penn State location and is drilling at 3,750 feet on the B. L. Langworthy farm, same township. Sylvania is drilling at 2,450 feet on No. 2 John Higley, same township. United Producers has a new location on the J. Ruppert farm, same township.

Bayliss is drilling at 2,870 feet on No. 1 Earl Pye, Genesee Township, Potter County. Tioga Natural Gas Co. is fishing at 4,715 feet in No. 1 Emporium Bank, and is shut down at 4,470 feet at No. 2 Emporium Bank, both in Shippen Township, Cameron County.

New York State

Belmont Quadrangle Development Co. completed No. 1 Joseph Waugh, Dix Township, Schuyler County, at 933 feet, at least 150 feet short of the expected location of the Elk. Empire Gas & Fuel is drilling at 2,500 feet on the Dean estate, Alma Township, Allegany County, and Higgins and others are down 300 feet on the Steadman farm, Allen Township, same county. Farnman and others are rigging up on the Murray estate, Belfast Township, same county. Tri State Gas Co. is fishing at 2,030 feet on the N. D. White farm, Bath Township, Steuben County, and Belmont Quadrangle is drilling at 210 feet on the T. H. Wing farm, Greenwood Township, same county.

New Gasoline Marketing Agreement Is Laid Before Petroleum Administration

By C. O. WILLSON

NEW YORK, Nov. 20.—As a result of the conferences held here early this month and in Dallas last week a new gasoline marketing agreement has been submitted to the petroleum administration at Washington to cover practices in 23 eastern and southeastern states and the District of Columbia. The new agreement has the approval of the major companies operating in this territory and also of the Planning and Coordination Committee. It is understood that similar agreements will be submitted from other marketing areas the terms to vary in minor details depending on local marketing conditions.

While all the terms of the markekting agreement have not been officially announced it is understood that it provides for the cancellation of all agreements now in effect between refiners, jobbers and dealers not later than May 5, 1935. Where there is a question as to whether the contracts can legally be terminated at that time the agreements will be submitted to a legal committee. The new plan also provides for the elimination of all discounts.

Other features of the plan will give major companies greater control over dealers in handling branded products. There will be no maximum price contracts and dealers must sell all grades at the posted schedules. Posted prices must be established at least 24 hours before they can be altered.

Sponsors of the new marketing agreement state that if it is approved it will place all angles of marketing on an equal basis in regard to prices and differentials and thus bring an end to the conditions which are held responsible for the recent price wars. It is understood that unless the plan is approved within 20 days it will be withdrawn. It is being offered with the hope of prompt approval so that the industry in this section will have a basis for solving problems which have resulted in prices dropping to the lowest levels in the history of the industry at many important consuming points.

Refiners Are Told of Advantages Propane Holds as Treating and Solvent Reagent

By W. T. ZIEGENHAIN

Of the many subjects discussed in the refiners' meetings of the past week at the Dallas convention of the A.P.I., the solvent refining of lubricating oils attracted the greatest interest, both in open discussion in the meetings and out of the rooms. The highlight of the discussion was Dr. R. E. Wilson's presentation of the case of "Propane" in modern refining. Master of the subject, he summarized the developments of the past six months in the use of propane as a refrigerant and a solvent, the work being done in the laboratories of the Standard Oil Co. (Indiana) and with the co-operation of the M. W. Kellogg Co., through P. C. Keith, vice president.

Doctor Wilson pointed out that for tens of years refiners had sought means for removing wax and asphaltic bodies from crude oil to make superior lubricants and had tried hundreds of chemicals, some of which were quite costly and until only recently had come to realize that at their own plants there were tons of the cheapest and most effective reagent that could be found. This reagent referred to was propane and during the enumeration of its characteristics Doctor Wilson said:

Advantages of Propane

"If a wax bearing oil is dissolved in this liquid propane and the pressure is gradually reduced, part of the propane will "boil" away, automatically refrigerating the solution down to minus 44° F., which is its boiling point at atmospheric pressure. At this point, all the wax is thrown out in readily filterable form and can be completely filtered out roughly a hundred times as rapidly as when using the older methods of chilling and filtration.

"On the other hand, if the propane solution is used to dissolve an asphalt bearing oil and is heated up to about 160° F. under a pressure of around 400 pounds it throws out of solution practically all of the asphaltic hydrocarbons and other heavy, dark colored and carbon forming constituents, leaving a good quality motor base oil in solution.

"Heating the propane still higher changes it rapidly to a liquid only one-quarter as heavy as water, which can scarcely dissolve any oil at all, and heating to above 212° F. converts it into a gas regardless of how much pressure is applied.

"Liquid propane can also be used to excellent advantage in connection with other refining agents, such as sulphuric acid, fuller's earth, and special refining solvents recently developed to produce high quality lubricating oils from many different kinds of crude oil. Once it has performed its functions in removing the undesirable constituents it can itself be readily removed from the purified oil and recovered for further use."

Probably of next importance from the standpoint of free discussion was the matter of correlating the tentative method for determining the antiknock value of motor fuel with the road test results obtained two months ago when exhaustive data were taken during the Uniontown hill climb. Sharp criticism of the manner of conducting the test and the conclusions drawn by the committee was given but there was also strong support lined up to substantiate the conclusions of the committee as reported by C. B. Veal, secretary of the Co-operative Fuel Research Committee.

The greater share of the paper presented by Mr. Veal and the principal discussion of the paper by Dr. C. R. Wagner of the Pure Oil Co. and K. G. Mackenzie of the Texas Co. is published elsewhere in this issue under the names of the respective authors, so that no further comment will be included here.

A most valuable and practical paper was presented by M. E. Clawson and T. O. Duller of the Continental Oil Co. on the subject "The Optimum Economic Design of Unfired Pressure Vessels Graphically Calculated in Accordance With the A.P.I. and A.S.T.M. Code." As suggested in the title, the paper included 11 drawings and a table with which the correct choice of design and method of fabrication could be found for the more important needs for pressure vessels in refining. The charts of graphs were intended to simplify the work of following out the requirements of the code and are said to be within 1 per cent of the results obtained when following the code itself. The authors stated that they did not intend to eliminate the use of the code but to supplement it with these graphs.

Turning away from the technical subjects, refiners did not neglect praising the work of the safety directors and men who lead in accident prevention work at the plants. Early in the convention Axtell J. Byles, president of the A.P.I., presented awards to the companies showing the best accident records for the year. In presenting the awards it was pointed out that since 1927, when the accident experience of the industry was 18 per cent worse than the average for all industries, the constructive efforts of the oil companies improved the accident situation until the records for 1933 show an accident experience 12 per cent better than the average for all industry.

Awards Made

Each year an increasing number of companies show their interest in accident prevention by keeping accident records and, in turn, reporting their accident experience to the Institute's Department of Accident Prevention for its "Annual Summary of Injuries in the Petroleum Industry." For 1933, 128 companies reported records covering 274,294 workers, computed according to NRA working schedules. One man out of each 36 was injured so severely that it was necessary for him to lose time of one day or more from the job as compared to one injury of a like nature in each group of 11 workers in 1927.

An "all department" award is made to the company operating in the five major departments of the industry, namely, refining, marketing, production, natural gasoline, and pipe line. This award is based on the least number of disabling injuries to each 1,000,000 man-hours worked.

"Department awards" are made to the companies operating in any of the five foregoing departments based on the lowest accident frequency rate. These awards are divided into two classifications, based on the number of men employed. An award is made to the marine department operating a deep sea fleet with the lowest accident frequency rate.

In making the all-department award to the Standard Oil Co. (Indiana), the accident experiences of the departments in the Standard Oil Co. (Indiana), Stanolind Oil & Gas Co., and Stanolind Pipe Line Co. were taken into consideration.

In the accident experience of 128 companies for 1933 their department ranking was: Refining department, second place; marketing department, first place; production department, second place; natural gasoline department, fifth place; pipe line department, first place.

The exceptionally low accident severity rate of seven-tenths of one day lost time resulted for each 1,000 hours worked as compared with one and nine-tenths days for the industry.

East Texas Gasoline Buying Program Not Needed If Shipments Are Controlled

By W. T. ZIEGENHAIN

DALLAS, Tex., Nov. 19.—Following Administrator Ickes' statement here on Wednesday of last week that "I am no more convinced now than I was before that we ought to go ahead with the buying plan" major refinery executives and those who had worked close to the East Texas gasoline buying program, including the Planning and Coordination Committee, were left undecided what to do next or what to expect.

Many of them took the attitude that a buying program was not needed. Others said some sort of buying program would need to be inaugurated if the East Texas refiners were to be "kept in line." It is a fact the majority of these plants need to get 5 cents a gallon for their gasoline if they are to refine dollar oil. But it is also a fact they cannot operate their plants if the Federal and state tender boards actually limit their crude runs to tender crude. At present there are about 14,000 bbls. of tender crude. The gasoline allocation for the East Texas refiners totals 700,000 bbls. for November, which means crude runs would need to average close to 65,000 bbls. daily. When this fact was appreciated, the buying contract was revised so refiners in the area would be guaranteed a crude supply adequate to permit them to make this quantity of gasoline.

Ickes Rejects Plan

The buying contracts had also included new provisions desired by certain East Texas refiners and the program was thought to be in its final stages when Administrator Ickes issued the statement, part of which follows:

"I signed a purchasing plan originally only on condition it was expressly stipulated that any man who sold gasoline under the plan, such gasoline having been refined from hot oil, did not again make gasoline from hot oil. I found I was dealing with men with no conception of what was right or wrong, men with no disposition to honor their written word. I have no disposition to again enter into agreement with that kind of gentry.

"Unless and until I am convinced that a marketing agreement is the thing I will sign no agreement. I have been advised by my attorneys not to sign the agreement which was put into effect here a few days ago. Provisions have been included in this agreement we never had in the first pact, provisions which run into conflict with Federal statutes."

When questioned on the prospect of a future approval of some sort of buying plan, the administrator inquired: "Is it necessary to substitute something?" He pointed out that most of the refineries running hot oil in East Texas have been shut down. "Let them stay shut down. It will be good for their souls. I don't see why concessions are in order for willful law-breakers," he said.

At present major refiners are entertaining no thought of an early resumption of buying. The efforts of the Planning and Coordination Committee to decide upon a course of action while in attendance at the A.P.I. convention in Dallas and after the administrator had expressed his views, failed, except that Amos L. Beaty, chairman of the Planning and Coordination Committee, has planned to discuss this subject with the administrator in Washington at the earliest moment.

An angle to the buying program not so freely discussed is the part the railroads are playing. Obligated to accept only tender oil, their business has been cut to a fraction of what it was. If it is possible to hold rail shipments and equally effective means are found for controlling truck movements, students of the buying program who have been saying the program was not practical are strong in their belief they will now be able to prove the loss of the buying plan is inconsequential. They point out that on October 20, several days before the tender board and railroads were brought into action, rail shipments from the field totaled 615 cars. On November 11, a representative day since the board has become active, 89 cars were moved. On October 20 the number of cars moving from the East Texas Field to points outside the State totaled 225 and on November 11 only 55. Within the State 390 cars moved on October 20 and only 34 on November 11. Reports made since November 11 will probably show a similar comparison.

It is upon these data that many executives of the major companies base their belief the buying program may be forgotten. It is also the basis for the interest being shown in the case filed on November 10 by several East Texas refiners who have asked the I. & G. N. Railroad its reason for not accepting certain shipments offered.

Petroleum Council Meeting

The Texas Petroleum Council has called a meeting of its board of directors at Houston on November 23 to consider the advisability of the council attempting to work out a practicable purchase and marketing plan.

The president of the East Texas Refiners Association has wired Secretary Ickes that the refiners in his association were "ready and willing to co-operate in any effort to get a gasoline purchasing plan reinstated," and has also wired Amos L. Beaty, chairman of the Planning and Coordination Committee, that the group was prepared to appoint a committee to work with any interested group toward a purchasing plan or similar program.

THE BIGGEST BELT SUCCESS IN THE OIL FIELD

A G.T.M.-Specified Goodyear Product

COMPASS Oil Well Belt

Specially Built In Either Single- Or Double-Deck Construction For Hardest Pumping Duty

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GOODYEAR PRODUCTS
FOR THE OIL INDUSTRY

- COMPASS OIL Well Belts (Both Single and Double Construction)
- COMPASS Endless Belts
- THOR Transmission Belts (Seamless)
- Goodyear Conveyor Belts (For Handling Fuller's Earth)
- Hy-Pressure Rotary Hose
- Goodyear Cargo Loading Hose
- Goodyear Fuel Oil Hose
  Service Station Pump Hose
  Service Station Air Hose

TALK to the producers who have the most difficult pumping jobs to do, and they will tell you the biggest belt success they know is the Goodyear COMPASS Oil Well Belt.

Built in both single- and double-deck construction — the particular construction being expertly specified according to the job by the G. T. M., Goodyear Technical Man — this belt has the following outstanding advantages:

Extremely low stretch
Freedom from ply separation troubles
Long life under excessively high tensions

The G.T.M. can show you records of COMPASS Oil Well Belts that performed efficiently and economically well onto two years as compared with ordinary belt life of less than three months in the same service.

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GOODYEAR

Divergent Views at Oklahoma City Hearing

(Continued from Page 7)

dent of the Skelly Oil Co., urged that the industry be permitted to work out its own future, through educational means, with the support of the Federal and state governments. He proposed:

"First, that when the present petroleum code expires in June, 1935, it be not renewed.

Second, that the industry be permitted to resume its program of educational and evolutionary progress, interrupted by the imposition of the petroleum code.

"Third, that the Federal Government establish a national agency to make periodic surveys and recommend to the states certain monthly production allowables on the basis of market demand. Compulsion would not be needed.

"Fourth, to establish restrictions on the imports of foreign crude petroleum.

"Fifth, that it accept fully the Connally amendment to assist the states in banning 'hot oil' shipments.

"Sixth, that it drop any plan to control marketing and refining as both are manufacturing industries, and with a control of production their own control would be assured."

Continuance of Code

Mr. Herndon continued:

"The question of continuance of the petroleum code after June 16, 1935, is one of the greatest importance. My company is willing to let it expire. We have gone along, supported it, obeyed it and have been willing to go along as long as it dealt with an emergency. We feel that it has fully served its purpose.

"It has not been a satisfactory agency. I had a feeling in June, 1933, that we were attempting too much and had better confine ourselves to fundamental things and try to establish a balance between supply and demand.

"The Federal oil administrator, Secretary Ickes, is a sincere and industrious man, but the many angles to carrying on the code have made it simply an insuperable task which cannot be performed by any one human agency.

"My company is ready to again take its chances in the open competitive world.

"I should be quite opposed to any government policy of attempting to control the refining and marketing branches of the industry. They are comparable to manufacturing branches of any industry.

"I am in disagreement at virtually everything Frank Phillips said. I cannot see where the Government should concern itself on it, any more than it does in the making of shoes or drugs."

Mr. Herndon said he had changed his mind and retracted the indorsement of May 15, he gave to Congressman Disney of the Thomas-Disney bill.

"I am congenitally opposed to too much governmental interference in business. At that time I regarded the Disney bill as perhaps a necessary evil.

"Six months have passed. We have had six more months of experience of how bureaucracy inevitably functions. We have seen lax enforcement of the petroleum code. Recently it required the almost completely aroused industry to force the code authorities to accept the Connally amendment and start to enforcing the law to forestall a collapse of the price structure.

"While my opinion is again subject to change I do not like bureaucracy or regimental control of a business as complicated as the petroleum industry because I do not believe it can ever work.

"Had the Oklahoma City Field been unitized it would have saved a waste in drilling of at least $150,000,000 and a loss of reservoir energy of as much, hastening a market collapse that helped lower prices to 18 cents a barrel in this State.

"Proration has not succeeded because drilling itself must first be controlled.

"Let's not put too much faith in the magic words of Federal control, for after all, the laws must be enforced by human instrumentalities."

Veasey Testifies

James A. Veasey, vice president and general counsel of the Carter Oil Co., explained the steps taken since 1919 to curb, amend or control the "law of capture" theory, which all factors admit, has been responsible for the periodic overproduction orgies.

Mr. Veasey urged that the special subcommittee be authorized by Congress to recommend to the several oil states, whose legislatures soon will be in session, that their market demand clauses in state conservation laws be strengthened to have them based upon Federal allocations.

Particularly he urged this be done for Oklahoma, Texas and Kansas, and possibly for California and others.

"If Congress should pass the Disney bill, or something like it, its constitutionality will be immediately tested in the courts and a lengthy delay might ensue. One of the distressing things we have to meet and labor against is the constant legal assaults on every stabilizing move we have brought forward."

No steps can be taken to regulate production of the older fields other than what is now being done, Mr. Veasey said. His plan would extend to the new pools at the very beginning of developments by leaseholders and royalty owners. This would be followed by institution of rules for drilling and producing the wells, even to the spacing of wells from property lines and determination of the amount of ground on which a well would be drilled.

The central agency would determine the demand of the nation for oil, chart its course and allocate to each state the amount of oil it should produce. Shipments of oil over and above the fixed quotas would be handled by the Interstate Commerce Commission. This setup is similar to that of today under the code, whereby the U. S. Bureau of Mines determines the state quotas.

Governor Landon's View

Gov. Alfred M. Landon of Kansas was unable to attend and sent the following message to Chairman William P. Cole, Jr.:

"National and local benefits secured through co-operation of Federal Government with oil-producing states has been one of the largest factors towards increasing the purchasing power of the entire Southwest during the past year, encouraging general business. Improvement has enlarged pay rolls, proving that progress toward the recovery can be made by honest co-ordinated efforts of states and Federal administration and industry.

"I regret I cannot personally make statement of conditions to your committee at this time, but wish to keep the benefits already obtained and assure co-operation with further constructive national legislation in the administration of oil conservation."

Carl Weiner of Chanute, president of the Kansas Stripper Oil Well Association, and Clyde I. Layton of Garnett, chairman of the same group, testified as to conditions in the little well area of Kansas.

There are 15,500 stripper wells in 13 counties of eastern Kansas whose average daily output is 62 bbls. a day. He showed that 980 employes received an average of $3.30 a day. The monthly pay roll approximated $97,729, or $1,116,640 annually. Pipe lines paid 90 cents a barrel for the oil averaging 31 gravity, or $9,610 daily; $259,470 monthly or $3,156,887 annually. Farmers got as royalty $394,565 a year. Labor received $1,109,344 a year, and supplies, taxes, etc., cost $1,116,000, making a total expenditure of $2,225,344 on present market which has existed for more than a year.

Both said $1.30 a barrel was necessary to show a clear profit.

Congressman Mapes inquired if the Federal Trade Commission's estimate of $1.04 was not wrong as far as the strippers were concerned.

R. E. Whitehead, Atlantic Oil Producing Co.

Washington Reports Gasoline Program May Again Be Considered There

By HUGH D. MALLON
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Nov. 19.—The program committee of the Planning and Coordination Committee is still working on the gasoline buying problem and stresses the point that the plan is only suspended. Later this week it is expected to meet here and decide on future activities.

In the meantime the refining branch is steadily losing money. Since the checking of "hot" oil production, prices have advanced slightly, but not enough to take the refiners out of the "red." The marketing situation, upset by the delay in the buying plan, is again in an extremely unsettled state.

It has been charged by Administrator Ickes that the retail market structure can be improved only by action of the industry, and that the Government is powerless to act. In view of this the industry is now preparing for submission to the administrator a marketing plan which would, for the present, be effective only in the eastern and southeastern states. This plan, if approved by the companies affected and by the administrator, would, it is believed here, immediately prove its usefulness.

Provisions are included in this, it is reported, which will stop the anomalous practice of major companies selling their products under their own trade name at one price, and then turning around and selling a product equally as good but not under the trade name, to jobbers at a lower cost. This practice, it has been claimed, is one of the primary causes of the continuance of the present unrest in retail prices.

Whether this plan goes into operation is problematical, as it is not known that all the affected companies have agreed to the terms of the agreement. If they have, the approval of Administrator Ickes, as well as that of the Department of Justice, remains to be obtained. However, within a few days these two agencies should have the document in their hands and an announcement be forthcoming from them very shortly.

It has been stated that the present activities to control the output of crude will continue so long as the petroleum administration may legally proceed, and there is no apparent prospect of the administration being stopped until the expiration of the code. A change in the personnel of the Tender Board will probably take place within the next three or four weeks, but that was expected as the announcement of the appointment of the board stated that its present membership was only temporary.

Revision of the agreement promulgated by the program committee to meet the requirements of the administration, and resumption of gasoline buying under the auspices of that committee, would, it is said here, aid the refining branch of the industry to get on an even keel, providing a means of orderly marketing which would remove from the market quantities of gasoline which have been a current threat to stability.

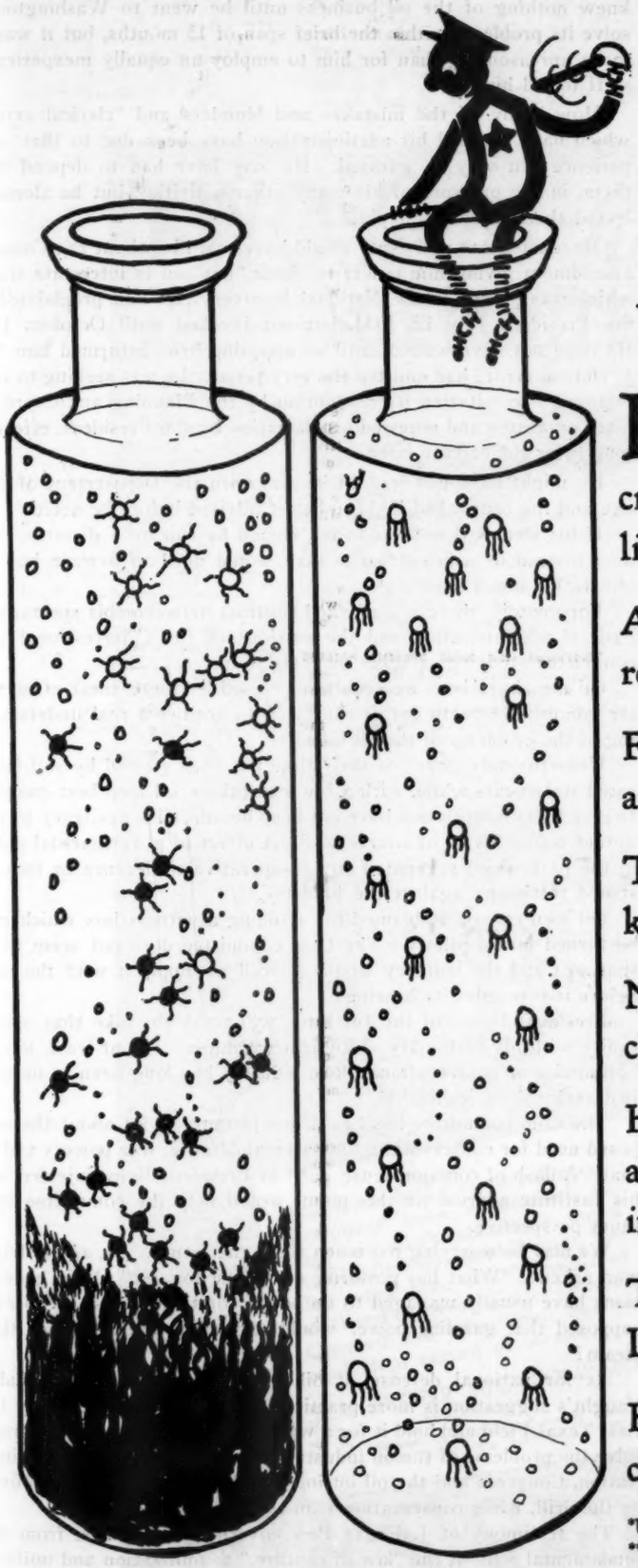
The proposed marketing agreement for the eastern part of the United States, when and if approved, would, it is asserted, put the retail marketing of petroleum products on a more stable level than is possible now, and at the same time outlaw some of the bad practices which have prevailed in the industry since the inception of the filling station.

The Petroleum Labor Policy Board has called a hearing in the Interior Department Building on December 3, 1934, at 10 a.m., to consider modification of the labor provisions of the code.

ROCKY MOUNTAIN FIELDS

Estimated daily average production for the week ending November 17:

WYOMING	
Salt Creek	17,920
Big Muddy	1,710
Badger Basin	30
Black Mountain	140
Byron	400
Dallas Derby	560
Dutton Creek	70
Elk Basin	460
Ferris	40
Frannie	2,010
Garland	1,510
Grass Creek	820
Greybull	10
Hamilton Dome	760
Hudson	320
LaBarge	1,230
Lance Creek	190
Lost Soldier	1,770
Mule Creek	shut in
Midway	90
Notches	shut in
Oregon Basin	2,450
Osage	730
Pilot Butte	10
Rex Lake	70
Rock River	1,450
South Casper	590
Poison Spider	240
Teapot	20
Total	35,800
MONTANA	
Buckley-Border	250
Cat Creek	600
Cut Bank	4,100
Dry Creek	0
Kevin-Sunburst	5,500
Lake Basin	40
Pondera	1,340
Total	11,830
COLORADO	
Florence	210
Fort Collins and Wellington	470
Iles Dome	1,640
Moffat	470
Orchard	90
Rangely	90
Tow Creek	170
Total	3,140
NEW MEXICO	
Artesia	550
Cooper Area	750
Empire Area	100
Eunice Area	3,470
Getty Pool	0
Hobbs	33,090
Hogback	190
Hospah	shut in
Lea Area	1,750
Jal	2,090
Jackson	1,500
Maljamar	370
Rattlesnake	730
Table Mesa	90
Total	45,630
Total Rocky Mountain region	96,250
Total previous week	96,160
Difference	90



U.H.M.* and O.M.**

If you could see what happens in your cracked gasoline it would look something like the left hand bottle

At the top are the u. h. m. and the little round o.m. from the air

Farther down you see the u.h.m. grabbing armfuls of o. m. and turning into gumbugs

The gumbugs settle down, carrying anti-knock value with them

Now look at the right hand bottle The chemical cop has been on the job

He has paralyzed the fingers of the u. h. m. and they can't grab the o. m. and turn into gumbugs

The chemical cop is Universal Liquid Inhibitor

He will save you many times what he costs

*Unsaturated hydrocarbon molecules
**Oxygen molecules

Universal Oil Products Co
Chicago Illinois

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THE OIL AND GAS JOURNAL

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The Issue Forced

The dominating impression carried from the American Petroleum Institute meeting at Dallas was the vigorous opposition to Federal control. The industry, thoroughly aroused to its danger by the exposure of the full meaning of governmental regulation, boldly accepted the issue and prepared for battle.

Fifteen futile months of Federal administration had shown how little it could do except to ask for greater control. Lack of results were attributed to lack of authority, serving as excuse for seeking further power until the whole industry could be reduced to the state of a public utility.

Mr. Ickes' threat that "the Federal Government may conclude it is its duty to consider declaring the oil industry to be a public utility" was the final revelation of where we were heading that brought the situation to a focus at Dallas.

Side by side with that declaration of administration policy was the visible demonstration of the administration at work in Texas.

It is putting it mildly to say that the oil men assembled at Dallas for the Institute meeting were astounded to meet the representatives of the administration in charge of this fifteen billion dollar industry.

The contrast with the "men of outstanding ability and lifelong experience in the oil industry" referred to by Mr. Ickes whose business has been turned over to youthful inexperience provoked first amazement and then anger.

Only the most marvelous success could have justified such selections and, as everyone knows, there has been anything but success. There has not even been co-ordination and co-operation among themselves, while the attitude of some has been so superciliously official as to irritate all contacts.

If these were a sample of what further Federal control was going to afflict the industry with it was time for the industry to declare itself, and it did.

Mr. Ickes, in times past, has acknowledged the confidence which the industry gave to him, before his speech at Dallas. But his intemperate language before the Institute, taken with his choice of assistants, for whom he must be held responsible, has shattered that confidence.

It may have been unreasonable, as he says, to expect a man who knew nothing of the oil business until he went to Washington to solve its problems within the brief span of 15 months, but it was no more unreasonable than for him to employ an equally inexperienced staff to aid him.

How many of the mistakes and blunders and "clerical errors" which have plagued his administration have been due to that inexperience can only be guessed. He may have had to depend upon them, in the pressure of his many other activities, but he alone selected them in the first place.

More adequate assistants would have told him about the Connally amendment giving him power to check "hot" oil in interstate traffic which was passed in the National Recovery Act and proclaimed by the President July 12, 1933, but not invoked until October, 1934. He need not have waited until an opposing brief informed him that a "clerical error" had omitted the very penalty he was seeking to have imposed, necessitating its readoption by the Planning and Coordination Committee and renewed proclamation by the President, effective long after the offense cited.

He might have had less difficulties with the Department of Justice and the courts had he been better advised before he acted.

If his idea is that an industry should be run by a dictator, "one man instead of a board," that man would need to beware how he selects his underlings.

Fortunately, there is a marked contrast between this spectacle of Federal administration and the sessions of the Congressional subcommittee studying possible oil legislation.

Oil men have been agreeably impressed by the earnest efforts of the committeemen to get at the facts, to acquire a real understanding of the problems of the oil industry.

Unfortunately, much of their time has been wasted by self-interested statements while, with a few exceptions, oil men best qualified to give them information have not been heard. This hesitancy to volunteer testimony is, of course, a direct effect of governmental policy in the past which prevented any co-operative conference or misconstrued testimony against the industry.

Oil men cannot be blamed for avoiding a witness box which may be turned into a pillory. The Cole committee does not seem to be that sort and the industry would do well to supply it with the facts before it concludes its hearings.

President Byles, of the Institute, will no doubt take that opportunity with his customary straightforwardness. He, at least, has no hesitancies or equivocations. The industry has long been in need of just such robust leadership.

The Cole committee has heard, for instance, a lot about the supposed need for conservation, for national defense, war powers and all that. A dash of common sense, such as President Byles injected into his Institute address on this point, would help the committee to a saner perspective.

We may be worrying too much about the future. Or, as the Irishman asked: "What has posterity ever done for us?" Next generations have usually managed to do better for themselves. Who ever supposed that gasoline power would expand so much farther than steam?

As for national defense, if oil is so urgently essential Judge Vaught's suggestion is more practical. Let the government buy the East Texas Field and hold it for a war reserve and at the same stroke solve the problems of the oil industry which now bedevil the administration, Congress and the oil business. The reserve is there, proved by the drill, while conservation is in the lap of the gods.

The testimony of J. Edgar Pew covering each phase, from the fundamental folly of the "law of capture," to unitization and uniform proration laws, backed by life long practical experience in the oil industry, must have impressed the committeemen as the sort of evidence they have been trying to secure.

The industry should make it plain to the Congressional committee that there is no hope in Federal control, that an industry of such world wide reactions cannot be regimented like a local public utility, and that the industry has a clear cut program of its own which will work.

TWO *Important Questions* DEFINITELY ANSWERED

1 ***Can DRESSER COUPLINGS be* SIMPLY, QUICKLY, ECONOMICALLY INSTALLED?**

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2 ***Will DRESSER COUPLINGS be* TIGHT UNDER ALL CONDITIONS, INITIALLY, AND 50 YEARS LATER?**

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NEWS FROM FOREIGN LANDS

GREAT BRITAIN

In view of the widespread occurrence of manifestations, both of crude oil and of natural gas in Britain, it is rather remarkable that the rapid development of the oil drilling industry in Europe and in the United States during the last quarter of the nineteenth century did not give rise to similar British activities, says Launcelot Owen, A.R.C.Sc., A.R.S.M.

"Thanks to data obtained in the course of coal mining operations, the subsurface structure of the Derbyshire coal fields is known in detail and with a considerable degree of accuracy, and it is not surprising, therefore, that the first well to be drilled—No. 1 Hardstoft—was located in this area on an eastern subsidiary fold of the great Pennine anticline. This well was commenced in October, 1918, and oil was struck on May 27, 1919, production being steady at about 1 ton per day. In all, 11 boreholes were drilled under government auspices at a total cost to the exchequer of about £564,000.

"Of these wells Hardstoft has produced a total of nearly 3,000 tons of oil to date; the D'Arcy well in Scotland produced 7 tons in about two months, and traces of oil were noted at Heath, Nos. 1 and 2 Ironville (Derbyshire) and in the West Calder (Scotland) well. Renishaw and Heath (Derbyshire) both gave considerable flows of gas from horizons in the coal measures, but these are without significance as far as the prospects of oil are concerned. No indications, either of oil or gas, were noted at Ridgeway and Birmington (Derbyshire), or in the Apedale or Warrington (North Staffordshire) wells, but it should be noted that these wells, unlike the others, did not definitely reach the top of the carboniferous limestone.

"In 1918, the taking of cores by cable tools was difficult and the results uncertain, and none was obtained, thus leaving us without what would now be considered essential information. Had the rotary system been employed, cores could have been taken, at least over critical sections, and would have given data as to the exact lithology, underground conditions and structure of the beds penetrated.

"Government drilling in Great Britain came to an end in 1921. Subsequent to that date, two further wells have been drilled at Hardstoft by private enterprise. No. 2 Hardstoft was located about 600 feet west of the original well and drilling was started on May 16, 1924. Even at this short distance, the strata penetrated in No. 2 well showed very considerable divergencies from that encountered in No. 1 well, the reason being partly unsuspected faulting. Oil and gas shows were recorded in the coal measures, but only a trace of oil was found at the top of the carboniferous limestone, at the depth of 3,056 feet, which corresponds to the producing horizon of No. 1. A strong flow of salt water was met with at 3,125 feet and the well was abandoned at 3,130 feet.

"No. 3 Hardstoft was located 600 feet eastward of No. 1 and here again shows of oil and gas were noted in the coal measures. What was assumed to be the top of the carboniferous limestone was reached at 3,260 feet, but no trace of oil was observed. The well was abandoned on June 8, 1926, in lava.

"Drilling has been proceeding in Sussex since 1931. A first well was abandoned, and the second was abandoned at 1,886 feet.

"To date 13 wells in search for oil have been completed in England. Of these, only one has produced anything approaching commercial quantities of petroleum. In Scotland, one well out of the two drilled gave a measurable, but not commercial, yield. To the optimists of 1918, this result can only be disappointing, but moderate opinion, now as then, still regards it as inconclusive, particularly when one bears in mind the balance of success and failure which has obtained in other countries.

"On the Derbyshire structure, every well reached and penetrated the carboniferous limestone, at depths varying between 1,665 feet below Ordnance datum (No. 1 Ironville) and 3,803 feet below O.D. (Renishaw). The presence or absence of oil, however, appears to be practically unaffected by the relative height of the Yoredale shale—carboniferous limestone boundary, and the determining of cause of productivity, such as it was, or of barrenness, must be ascribed to the presence or absence of faulting. Actually, No. 1 Hardstoft well was located with the object of striking at depth a fault plane which outcropped to the southwest of the boring, and it appears to have done so at the point where production was obtained. Data obtained from No. 2 Hardstoft location tend to confirm this.

"While all except the lowest part of the carboniferous series underlying Derbyshire may be considered as proved to be barren of commercial quantities of petroleum, we cannot logically assume the same is true in other areas, particularly where these older beds are completely masked by a cover of newer formations.

"In the eastern counties, for example, our knowledge of the Palaeozoic beds is entirely dependent on the few deep boreholes which have passed through the Mesozoic cover. We learn from them, however, that the Paleozoic surface was deeply eroded in post-carboniferous times, with the result that pre-carboniferous rocks are sometimes encountered in direct contact with the secondary blanket. In parts, particularly in Palaeozoic synclinal areas, the carboniferous rocks are still preserved. As a general principle we may assume that areas underlain by carboniferous rocks occur in Norfolk and Suffolk, while they are usually absent under Essex, Hertfordshire and Middlesex.

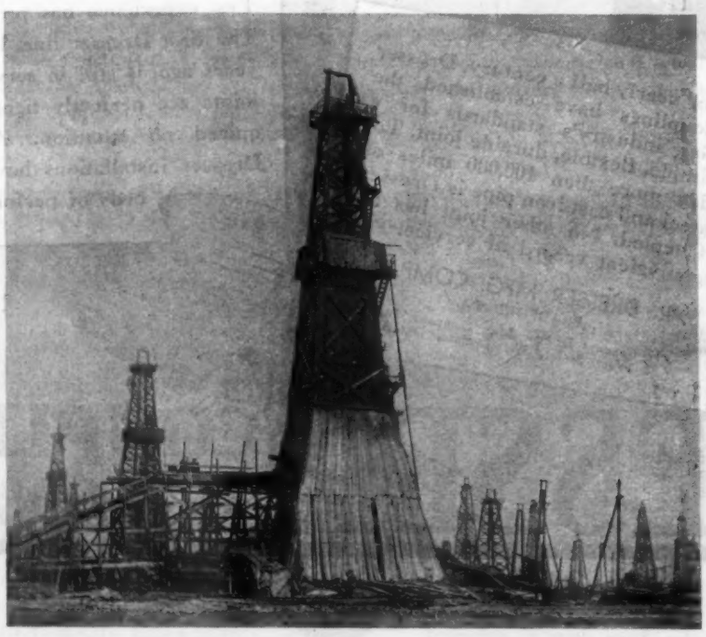
"Owing to the limited and scattered nature of the bore-hole data, the elucidation of the buried Palaeozoic structure in eastern England is difficult and largely conjectural, but deductions founded on regional geology suggest that the Caledonian (northeast-southwest) and Charnian (northwest-southeast) trends are predominant. Oil seeps have been noted at King's Lynn, Downham, Littleport and Ely in rocks of Jurassic age. These seeps are disposed, roughly, in a direction corresponding to the Caledonian trend, but their derivation is uncertain and it is possible that they emanate from a deep seated source. Oil obtained from the Kelham bore in Nottinghamshire, found in August, 1911, in proving the coal measures, was very heavy and black and, at one time, was considered to have considerable significance, but two wells drilled nearby for oil produced only small shows of no commercial value.

"The problem of the distribution and structure of the buried Palaeozoic rocks in England requires much further study before any really definite conclusions can be formulated. Modern geophysical methods of investigation may discover indications of promising structures, but the value of these, from the point of view of oil production, can be determined only by the drill."

U. S. S. R.

While crude oil exports from the U.S.S.R. have shown a slight increase over 1933 according to government reports there has been a large decline in the exports of most of the refinery products so that the total exports of 2,475,500 tons for the first seven months of this year are less than the 3,032,000 tons total for the same period in 1933.

In the gasoline end exports totaled 736,200 tons the first seven months of this year compared to 901,600 tons for the same period in 1933. Exports of kerosene this year declined to 241,700 tons which compares with 404,600 tons last year. Exports of gas oil, lubricating oils and fuel and Diesel oil also decreased this year. Contrary to this trend exports of wax jumped to 6,161 tons.



—Photo by L. C. Uren.

Sheathed rig in Bibi Eibat Field, Baku district, U. S. S. R. Note elevated trestle—approach to rig used in capping operations. Well flowing out of control when photographed

MANCHUKUO

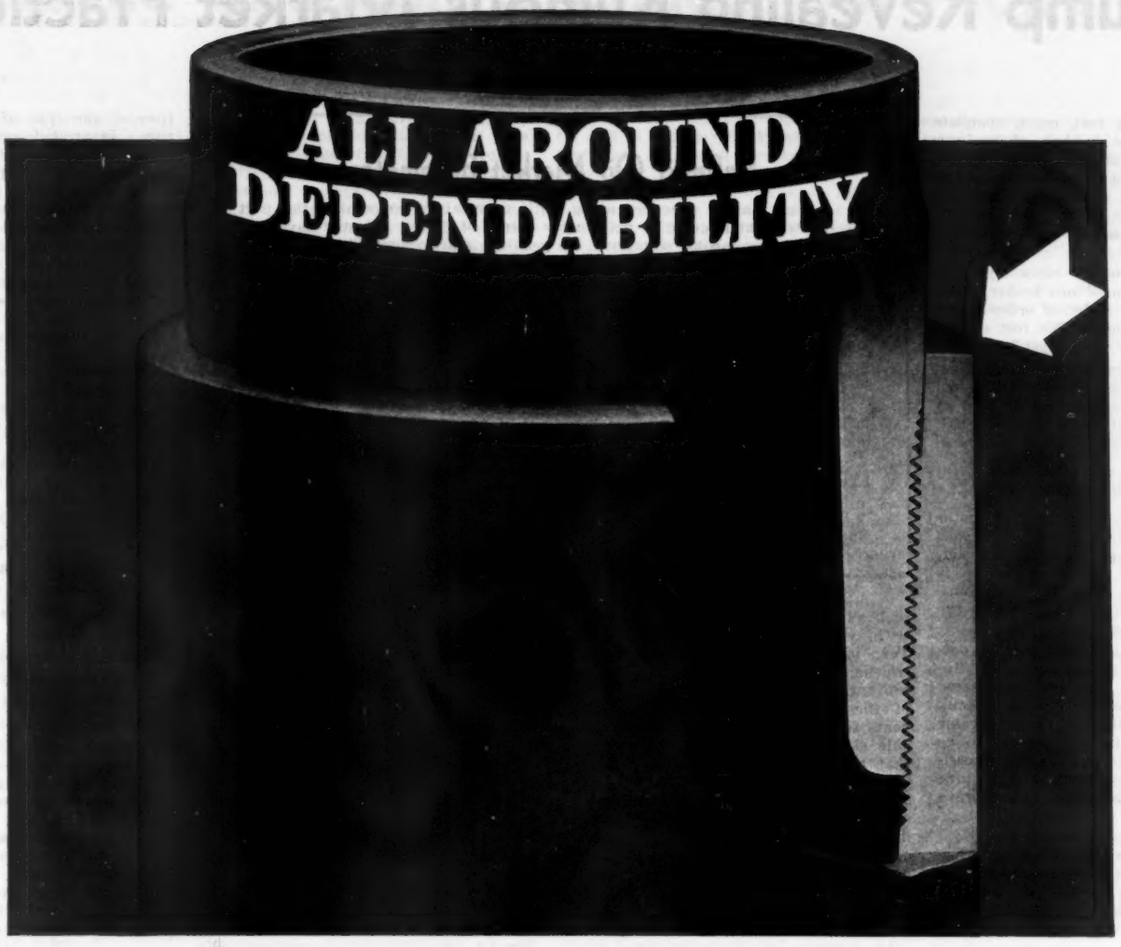
American and British oil interests which have substantial investments in Manchukuo are more hopeful that efforts being made to end or modify the announced intention of that country to create a monopoly of the oil business will prove successful.

The government of Manchukuo, however, has announced additional details in connection with its plans and Japan again refused last week to intercede in the matters under dispute as requested through diplomatic channels by the governments of Great Britain and the United States. Japan continues to take the position that Manchukuo is an independent country and all foreign countries should discuss directly matters concerned with foreign trade involving the "open door" policy. It has been charged that the present plans of the government in Manchukuo have been largely directed by Japanese interests which will benefit through the monopoly as they expect to furnish a large part or all of the petroleum products distributed in that country. This contention has been the basis of recent negotiations between the governments of the United States, Great Britain and Japan.

It is pointed out that aside from the diplomatic protests of major powers based on the continuance of the "open door" policy in China the oil interests have a strong position in any negotiations involving the future plans of both Japan and Manchukuo in regard to the oil business. The crude oil production of both countries is of little consequence in relation to their total requirements.

Should Manchukuo continue in its plans for a monopoly to the partial or entire exclusion of private interests which have distributed in that country for many years, it will get the bulk of its supplies from the refinery now being built at Dairen, a port of Yellow Sea, by the Manchukuo Oil Co. which is controlled by Japanese capital. This refinery will be forced to get its crude oil supplies from foreign countries. The great bulk of this production in the Far East is in the hands of the Standard-Vacuum and Royal Dutch-Shell interests which are at this time the principal distributors in both Japan and Manchukuo. The only other sources of supply would be the U.S.S.R. European fields and the West Coast of the United States. The Far East fields have an important advantage over these areas in regard to transportation costs to Japan and neighboring points.

It is reported that the Japanese government has endeavored to obtain large supplies from various sources in United States, Rumania, Mexico and other oil-producing countries but the heavy transportation costs as well as other factors have resulted in these efforts being unsuccessful. It is believed that the disputes will result shortly in compromises in which the American and British oil interests now selling in Japan and Manchukuo will continue to have a large part of the business with adequate compensation for any properties which the governments or other private interests acquire with the bulk of the crude supplies to come from the fields of the Far East.



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Pittsburgh Special

DRILL PIPE

Group 3 Spot Business Nears Zero, With Price Slump Revealing Ruinous Market Practices

By T. F. SMILEY

Anybody seeking rest, quiet, complete isolation from the hubbub of business could have done no better in the last week than to settle down comfortably in the tranquil hush of some oil broker's office. No clamor of telephone, gabble of sales talk or clack of teletype ruffled the placid hours.

"I wouldn't spend 15 cents trying to get business," declared one broker, shoving a dust-covered tablet of order-blanks aside to make room for his feet on the desk. "There isn't any to get."

He had epitomized the situation. Spot buying of gasoline in the Oklahoma (Group 3) area was as close to zero as it could get without being precisely that. Other products were in about the same case.

Spot Quotations Nominal

Virtually all the movement of motor fuel was on contract. Spot quotations were little more than nominal; but sliding down as they did from the levels reached last week, they revealed something of the evil days through which the market had been passing.

Gasoline, which had been gaining outward signs of strength under the influence of promises that the purchasing plan was about to be reinstated, sank into a rapid decline when it became known last week that there was to be further delay. The decline was accelerated by the announcement of Secretary Ickes' declaration he would not approve the projected plan.

An opinion freely expressed among refiners and marketers this week was that any further attempt to revive the buying program would be useless. It was regarded as improbable that the Planning and Coordination Committee would make such an effort again anyway, particularly in view of its experience in Dallas, Tex., last week while the American Petroleum Institute was holding its annual convention there. It seems that members of the committee were in session for hours trying to whip the plan into workable shape only to discover in the end that Secretary Ickes already had made up his mind against it and that he had announced his decision to newspapermen without going to the trouble of informing the Planning and Coordination Committee. In view of all the circumstances it was believed unlikely life ever could be restored to the plan again, although it was said the subject would be taken up with Mr. Ickes.

Refined Oil Market Barometer

Insane market practices along with uncertainty concerning the part the Government is going to play in the future of the oil industry have produced an unpromising situation. No genuine improvement likely till marketers shift their attention from gallonage to profits and until the extent of government control is more clearly predictable. Ground for hope is seen in new marketing agreements to be submitted to petroleum administration.

Mid-Continent.—Spot business almost at standstill. Gasoline weak. Natural strengthening. Bright stocks down 1 cent.

East Coast.—Gasoline insecure. Kerosene active and firm. Bright and steam refined stocks slow.

Gulf Coast.—Whole refinery market shaky and inactive, with kerosene brightest spot. Evident material moved is at prices under prevailing asking quotations.

Pennsylvania.—Market generally weak, neutrals alone holding firm. Fuel oil and residuals drop.

California.—General refinery market steady, with prices unchanged.

Chicago.—Gasoline quiet. Heating oils steady. Kerosene strong. Naphthas unchanged.

Aggravating a precarious situation were ruinous price wars. In some cases these rivalries appeared to be simply the familiar fight among marketing organizations to take business from each other, or to hold business already gained. In St. Louis, Mo., for instance, U. S. Motor third-grade material shipped out of Group 3 was retailing at 9½ cents. Since the freight of 2 cents, the dealer's margin of 4 cents and the tax of 3½ cents aggregate exactly 9½ cents, it requires no expert mathematician to figure out that the gasoline itself was being given away. At some other points still crazier marketing practices were reported.

Independent jobbers and refiners declared themselves to be the intended victims of one type of reported price cutting. Integrated companies, which sell their products on a Group 3 freight rate basis and which ship gasoline to distant cities where they have retail outlets, were said to be selling some of this gasoline in tank wagon lots to competing marketing concerns at prices which sacrificed freight and dealer's margin, although they should know that these marketers would undersell them. The integrated company thus by its own act has come into competition with its own gasoline sold at cut rates. The purpose of this strange performance, according to the interpretation of some observers, was to lure the independent jobber into making contracts with the major company instead of with an independent refiner. A broader explanation, and perhaps a more accurate one, was that the whole assortment of insane marketing practices is symptomatic of the wild, unreasoning race for gallonage.

Profits, Not Gallonage Needed

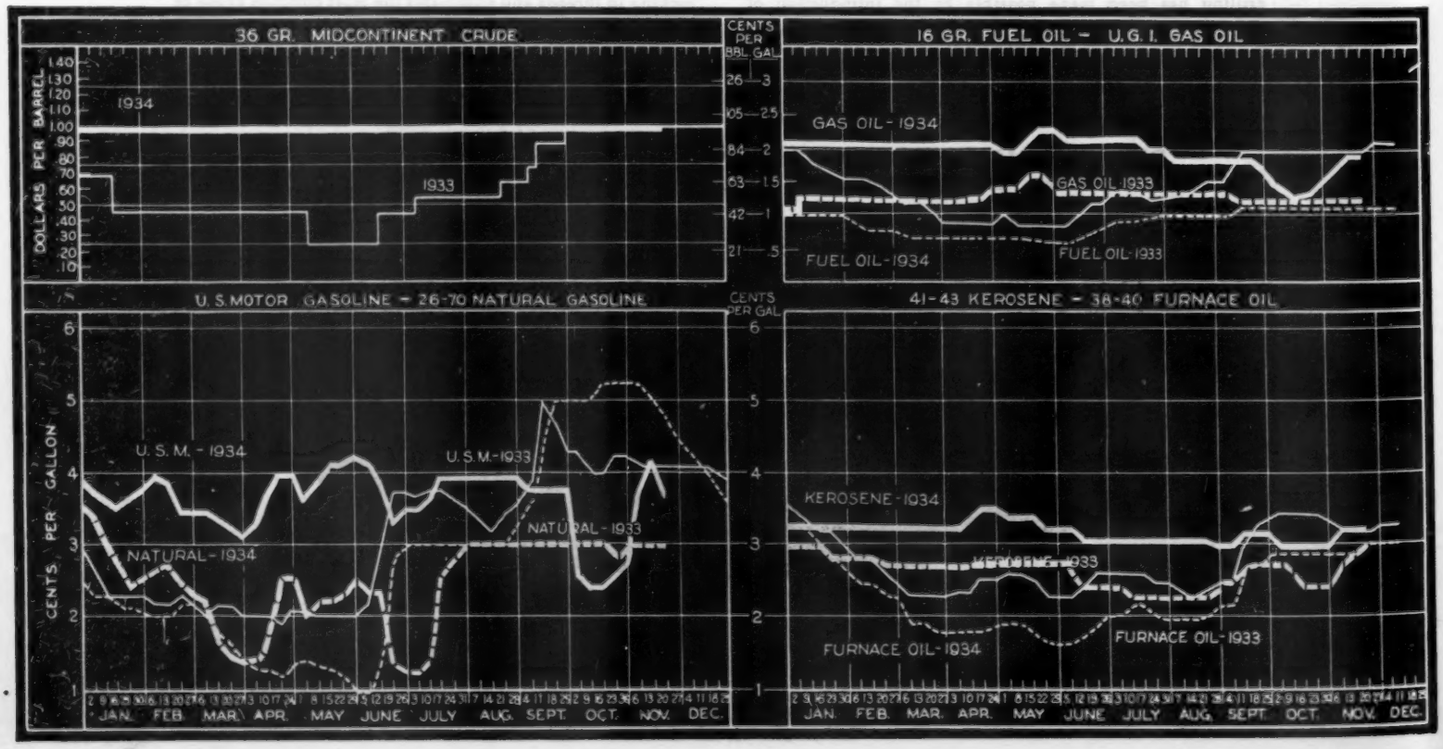
"It is useless to expect any restoration of a healthy gasoline market until we decide we are in business for profits and not for gallonage records," remarked one sales executive who has watched developments of recent months with misgiving mixed with disgust.

Oklahoma itself was reported to be free from retail price wars.

The collapse of the gasoline market spelled loss for brokers who bought on the assumption that prices would continue to rise. Gasoline in transit, bought at 4 cents just before the slump, was looking for buyers at 3⅝ cents 24 hours later. East Texas gasoline was reported to be moving without tenders for intra-

(Continued on Page 28)

Representative Mid-Continent Quotations on Crude Oil and Refined Products Basis Oklahoma (Group 3)


36 GR. MIDCONTINENT CRUDE
DOLLARS PER BARREL
1934
1933
CENTS PER BBL. GAL
16 GR. FUEL OIL - U.G.I. GAS OIL
GAS OIL - 1934
GAS OIL - 1933
FUEL OIL - 1934
FUEL OIL - 1933
U.S. MOTOR GASOLINE - 26-70 NATURAL GASOLINE
CENTS PER GALLON
U.S.M. - 1934
U.S.M. - 1933
NATURAL - 1934
NATURAL - 1933
CENTS PER GAL
41-43 KEROSENE - 38-40 FURNACE OIL
KEROSENE - 1934
KEROSENE - 1933
FURNACE OIL - 1934
FURNACE OIL - 1933
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.

Kerosene Most Active Product on East Coast; Gasoline Situation Is Critical But Hopeful

By C. O. WILLSON
New York Bureau, The Oil and Gas Journal

NEW YORK, Nov. 19.—The past week was one of the quietest of the year in East Coast refinery markets. The general exodus of oil people last week to the A.P.I. meeting at Dallas included many sales executives who expected to secure a close-up picture of marketing conditions in the Mid-Continent and the Gulf Coast as a background to their own operations before they returned. In the meanwhile, trading here was confined to routine transactions with no important changes in the tank car and small barge quotations of any of the principal products.

Probably the most active product in the market is kerosene. The supply of the best grades of kerosene in the hands of refiners and water terminal operators do not appear large and the demand from consumers and jobbers has improved. Two of the larger companies are reported to be among those which are in the market for kerosene comparable in quality to that which they furnish from their own plants to their jobber and tank wagon customers. Inquiries for spot material at the Gulf Coast have found that market tighter than it was in the late summer, although the export business in that product continues slow except on contracts. Prices in the New York harbor area on kerosene in tank car lots range from 5 to 5¼ cents.

As in the case of gasoline there are many points in New England and New York State where the tank wagon schedules on kerosene are below normal. The explanation is that when distributors start price cutting in gasoline it usually spreads to other products. It is also reported that cut-price conditions prevail at several points in all grades of furnace oils.

Burner Oil Sales

Although the actual sale of oil burners in this territory has been behind 1933 so far this year, there has been a marked improvement in installations in recent weeks and available information indicates that the number of units to be fueled this winter will be greater than last season. The slowness in new sales early this year is blamed on the uncertainty regarding oil prices and also conditions within the oil burner manufacturing industry. In this connection there are developments within that industry which probably will have considerable significance in the oil industry next year according to those familiar with conditions. It is believed that sales of burners to household owners is to be stimulated through reductions in prices with improved types of burners. In this particular area one of the major oil companies has been highly successful in selling the burner manufactured by an affiliated company over the past few months. The price of the burner is low compared to the products of many other manufacturers. Liberal terms are given, so that the household owner can pay for the unit with a small addition to his monthly oil bill which the company is also in a position to furnish. This tie-in between the sale of the burners and oil is said to be receiving serious consideration from other oil companies. The significance of this development from the standpoint of the oil business is that it may mark the beginning of a rapid expansion in sales of burner oils. While the sale of burner oils now amounts to around 45,000,000 bbls. yearly for the entire country with a fairly steady growth, the demand has never reached the volume predicted in the early history of the business. This has been accounted for by the fact that the initial installation costs were too high for the average home owner, with faults to be found in the arrangements to furnish oils and service the equipment. The efforts of the oil company mentioned and other manufacturing and distributing interests over the past year has been directed toward minimizing the influence of these factors, placing the industry in a position to greatly widen its market.

Gasoline Situation Critical

It is believed that the next few days will determine the gasoline market trend in both the service and tank car ends for the winter months at least. In the tank wagon and service station division some improvement was noted in prices at several points over the past week. Retail prices at Camden, N. J., were advanced by both large and small distributors although prices are still below normal. In Brooklyn, retail prices were reduced 2 cents on November 15. Some general action is needed which will bring higher quotations at practically all the main consuming points in this territory, and this can only be brought about through a change in attitude in those who were responsible for the collapse in prices last month.

If this does not materialize in the immediate future it is believed that retail schedules will be fixed at their present levels for the winter months except at those points which are exceptionally low and have no relationship to the cost of production and distribution. In the event that retail prices are not advanced it is assured that posted crude oil and gasoline tank car prices will be reduced in line with these consumer and wholesale prices.

Expect Improved Conditions

Reflecting possibly an attitude apparent in financial circles, there are many in the oil marketing trade who refuse to take a pessimistic position in regard to the oil business at this time. They are familiar with the chaotic conditions in the retail operations and the inability of competitive units to come to any agreements early in the month regarding price differentials, guaranteed margins and other details of distribution. But these observers incline to the belief that these are more or less superficial conditions which reflect effects rather than causes of ills in the industry.

Backed with exhaustive statistical data, these observers contend that overproduction of crude petroleum during the past several months has been largely confined to one area—East Texas—with several sections facing shortages of raw material for their refinery operations another year. They feel that either through state or Federal control, or a combination of the two, the illegal operations of East Texas will be eliminated in the near future. With this thorn in the side of the industry removed, they contend that conditions in the remainder of the industry point to higher rather than lower prices for crude and its principal products. In regard to demand they anticipate a small gain in the United States for 1935 over 1934, with a much larger increase in foreign countries, where the consumption of petroleum products in many cases will establish all-time peaks this year. These observers further predict that present crude oil prices at the wells and tank car prices at East Coast refineries will hold and this fact will shortly bring an end to the price wars in retail sales.

Prices

In regard to gasoline prices, sellers were closely watching developments in East Texas and the Gulf Coast. The immediate objective of those who have sponsored a buying program of excess gasoline in East Texas is a price around 6 cents at the Gulf for middle octane gasoline. If this materializes, it will mean the end of coastwise shipments which have been delievered at East Coast points at prices ranging from 4¾ to 5¼ cents, depending on grade. Buyers said little material was being offered at the Gulf Coast, with no sellers apparently willing to speculate on gasoline for December and later delivery. Even a price range of 4½ to 5 cents for gasoline at the Gulf would be an improvement over recent quotations and would remove the danger of gasoline being dumped on this market at prices under those now being maintained by most of the major refiners in this territory.

A better tone in the gasoline export quotations at the Gulf is noted by several familiar with that market. Rumania sellers have advanced their prices again and present quotations are in line with 4⅜ to 4½ cents quotations at the Gulf for 375 endpoint material. Prices range down to 3⅞ cents for U. S. Motor gasoline. The domestic prices in New York harbor in tank car lots are 5 cents for low octane, 5¼ cents for the middle octane and 5½ cents for the high octane white grades.

Bunker fuels are unchanged at $1.15 for C grade with new business reported slow. Industrial grades in New York area range up from 4 cents. Diesel fuel is unchanged at $1.189 to marine trade and 4½ cents in tank car lots. The demand for gas oils is fair at 4¼ to 4½ cents.

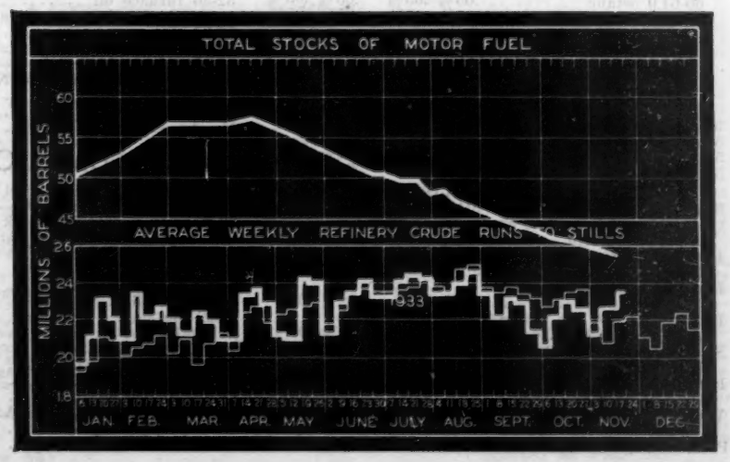
No improvement is noted in steam-refined stocks and bright stocks. Two or three grades were reduced in price over the past week with both the export and domestic demands slow. Low cold test paraffin neutrals continue strong with quotations of 34 and 35 cents on 200-3 Pennsylvania in barrels for export. Bulk prices are 27 to 28 cents.

Some improvement is reported in the domestic demand for certain grades of refined wax. Prices are unchanged.

American Petroleum Institute Weekly Refinery Statistics

Week Ending November 17, 1934

	Capacity reporting per cent	Daily crude runs (bbls.)	Finished motor fuel (bbls.)	Gas oil and fuel oil (bbls.)
East Coast	100.0	457,000	11,546,000	14,487,000
Appalachian	93.3	90,000	1,519,000	1,640,000
Indiana, Illinois, Kentucky	94.6	333,000	6,127,000	5,437,000
Oklahoma, Kansas, Missouri	83.7	247,000	3,505,000	3,913,000
Inland Texas	47.6	101,000	1,054,000	1,618,000
Texas Gulf	97.5	521,000	4,192,000	11,109,000
Louisiana Gulf	96.4	110,000	1,058,000	3,517,000
North Louisiana and Arkansas	83.7	45,000	165,000	580,000
Rocky Mountain	66.7	45,000	409,000	583,000
California	96.9	422,000	10,317,000	71,222,000
Total United States	89.7	2,371,000	39,892,000	114,106,000



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement except as otherwise noted

The following quotations are exclusive of the Federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasolines

	Nov. 20		Nov. 13	
OKLAHOMA (Group 3)—				
U. S. Motor grades:				
Below 63 octane	.03¾	.04	.04¼	.04¼
63-70 octane	.04⅛	.04⅞	.04⅝	.04⅞
60-62 400 grades:				
Below 63 octane	.03¾	.04	.04¼	.04¼
63-70 octane	.04⅛	.04⅞	.04⅝	.04⅞
64-66 375	.03⅞	.04	.04⅛	.04¼
68-70 360	.04	.04⅝	.04¼	.04⅝
NORTH TEXAS—				
U. S. Motor grades:				
Below 63 octane	.03¾	.04	.04¼	.04¼
63-70 octane	.04⅛	.04⅞	.04⅝	.04⅞
60-62 400	.03¾	.04	.04¼	.04¼
64-66 375	.03⅞	.04	.04¼	.04¼
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
U. S. Motor grades:				
Below 63 octane	.04¼	.04½	.04¼	.04½
63-70 octane	.05	.05¼	.05	.05¼
60-62 400	.04¼	.04½	.04¼	.04½
68-70 360	.05	.05¼	.05	.05¼
ARKANSAS (Ark., N. La. & Miss. del.)—				
U. S. Motor grades:				
Below 63 octane	.04¼	.04½	.04¼	.04½
63-70 octane	.05	.05¼	.05	.05¼
CHICAGO (based on Oklahoma Group 3)—				
U. S. Motor grades:				
Below 63 octane	.04	.04¼	.04	.04¼
63-70 octane	.04¾	.05	.04⅞	.05
60-62 400	.04	.04¼	.03⅞	.04
64-66 375	.04⅛	.04⅜	.03⅞	.04
68-70 360	.04¼	.04½	.03⅝	.04⅛
Aviation fighting grade	.04⅞	.05	.04¾	.05
PENNSYLVANIA (inland refineries)—				
58-60 U. S. Motor:				
Below 60 octane	.05	.05¼	.05	
60-64.9 octane	.06	.06¼	.06	
65-70 octane	.06⅜	.07	.06⅜	
68-70 350	.06⅛	.06¼	.06⅛	
CALIFORNIA (domestic movement)—				
54-58 U. S. Motor	.07	.08	.07	.08
58-60 400	.08	.09	.08	.09
EAST COAST—				
U. S. Motor, below 60 octane:				
*New York	.05¼		.05¼	
Baltimore	.05¼		.05¼	
U. S. Motor, 60-64 octane:				
*New York (Bayonne)	.05½		.05½	
Philadelphia	.05½	.05¾	.05½	.05¾
Boston	.05¾		.05¾	
Baltimore	.05½		.05½	
Charleston, S. C.	.05½		.05½	
U. S. Motor, 65 and above:				
*New York	.05¾		.05¾	
Philadelphia	.05¾		.05¾	
Boston	.05¾	.06	.05¾	.06
Baltimore	.05¾		.05¾	
Charleston, S. C.	.05¾		.05¾	

*All grades of gasoline one-fourth cent less for small barge shipments.

GULF COAST (domestic)—				
U. S. Motor:				
Below 60 octane	.05		.05	
60-64.9 octane	.05¼	.05⅜	.05¼	.05⅜
65 octane and higher	.05½	.05⅝	.05½	.05⅝

Naphthas

	Nov. 20	Nov. 13
PENNSYLVANIA (inland refineries)—		
50-52 (blending)	.04¾	.04⅞
52-54 450 (blending)	.04¾	.04⅞
54-56 450 (blending)	.04¾	.04⅞
50-52 450 (blending)	.04¼	.04⅞

CHICAGO (based on Oklahoma Group 3)—				
50-52 450 (blending)	.04	.04¼	.04	.04¼
Cleaners' naphtha, 56-58 gr., 200 i.b.p.-320 e.p.	.06¾	.07	.06¾	.07
Lacquer diluent, 180 i.b.p.-250 e.p.	.07¾	.08	.07¾	.08
Lacquer diluent, 140 i.b.p.-200 e.p.	.08¾	.09	.08¾	.09
Rubber solvent, 68-70 gr., 100 i.b.p.-300 e.p.	.06¾	.07	.06¾	.07
Stoddard solvent, 300 i.b.p.-410 e.p., over 33° flash	.06¼	.06½	.06¼	.06½
Pet. thinner, 290-300 i.b.p.-415 e.p., over 33° flash	.06¼	.06½	.06¼	.06½
V.M.&P. naphtha, 56-58 gr., 190-200 i.b.p.-330 e.p.	.06¾	.07	.06¾	.07
Petroleum spirits	.05¾	.06	.05¾	.06

Natural Gasolines

	Nov. 20		Nov. 13	
OKLAHOMA (Group 3)—				
Grade 26-70	.03	.03⅛	.03	
Grade 18-55	.03⅝	.03¾	.03½	.03⅝
Low vapor pressure grades:				
14 lb. v.p. (max.)	.04	.04⅛	.03¾	.04
11 lb. v.p. (max.)	.04¼	.04½	.04¼	.04½
NORTH TEXAS—				
Grade 26-70	.02⅝	.02¾	.02⅝	.02¾
Grade 18-55	.03⅜	.03½	.03⅜	
Low vapor pressure grades:				
14 lb. v.p. (max.)	.03⅝	.03¾	.03⅝	.03¾
11 lb. v.p. (max.)	.04	.04¼	.04	.04¼
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
Grade 26-70	.03⅜		.03⅜	
CALIFORNIA—				
75-85 375	.06½	.06¾	.06½	.06¾

Kerosenes

(All kerosenes water white)

	Nov. 20		Nov. 13	
OKLAHOMA (Group 3)—				
41-43	.03¼	.03½	.03¼	.03½
42-44	.03½	.03⅝	.05½	.03⅝
NORTH TEXAS—				
40-41	.03	.03⅛	.03	.03⅛
41-43	.03¼	.03⅜	.03¼	.03⅜
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
41-43	.03⅜		.03⅜	
ARKANSAS (Ark., N. La. & Miss. del.)—				
41-43	.03⅜	.03½	.03⅜	.03½
PENNSYLVANIA (inland refineries)—				
45	.04½	.04⅝	.04½	.04⅝
46	.04⅝	.04¾	.04⅝	.04¾
47	.04¾	.04⅞	.04¾	.04⅞
CHICAGO (based on Oklahoma Group 3)—				
41-43	.03¼	.03½	.03¼	.03⅜
42-44	.03½	.03⅝	.03½	.03⅝
CALIFORNIA (Pacific Coast consumption)—				
38-40 high burning test	.04¾	.05¼	.04¾	.05¼
NEW YORK (Bayonne, N. J.)—				
41-43	.05	.05¼	.05	.05¼
GULF COAST (domestic)—				
41-43	.04½	.04⅝	.04½	.04⅝

Petroleum Coke

(Prices per ton f.o.b. refineries in Chicago area)
(Refineries will absorb freight to 80 cents a ton)

	Nov. 20	Nov. 13
Still run	5.75	5.75
Direct from still	6.75	6.75
Egg, nut, pea	8.25	8.25
Lump	8.25	8.25

Furnace Oils and Tractor Fuels

(Zero cold test under 190° flash and good odor)

	Nov. 20		Nov. 13	
OKLAHOMA (Group 3)—				
32-36 straw	.02⅞	.03⅛	.02¾	.03⅛
36-38 straw	.03	.03¼	.02⅞	.03
38-40 straw	.03	.03¼	.02⅞	.03
38-40 prime white	.03⅛	.03⅜	.03⅛	.03¼
NORTH TEXAS—				
38-40 straw	.03	.03⅛	.02⅞	.03
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
36-40 furnace oil	.03	.03⅛	.02⅞	.03
ARKANSAS (Ark., N. La. & Miss. del.)—				
32-36 furnace oil	.03	.03⅛	.02⅞	.03
CHICAGO (based on Oklahoma Group 3)—				
32-36 straw	.03	.03⅛	.03	.03⅛
38-40 straw	.03	.03⅛	.03	.03⅛
38-40 prime white	.03⅛	.03¼	.03⅛	.03¼
NEW YORK (Bayonne, N. J.)—				
No. 1	.05	.05¼	.05	.05¼
No. 2	.04½		.04½	
No. 4	.04½		.04½	

Gas Oil, Diesel Oil and Fuel Oil

(Gas oil per gallon, Diesel and fuel oils per barrel)

	Nov. 20		Nov. 13	
OKLAHOMA (Group 3)—				
32-36 gas oil cracking stock	.01⅞	.02	.01⅞	.02
U.G.I. gas oil	.02	.02½	.02	.02½
32-36, zero to 15 gas oil	.02⅜	.02¾	.02⅜	.02¾
28-30, No. 3 burner oil	.97½	1.02½	.97½	1.02½
26-30, zero to 10 fuel oil	.85	.95	.85	.95
24-26 fuel oil	.77½	.80	.77½	.80
20-22 fuel oil	.72½	.75	.72½	.75
Below 16 fuel oil	.60	.62½	.60	.62½
NORTH TEXAS—				
32-36 gas oil, industrial	.01⅞	.02⅛	.01⅞	.02⅛
22-26 fuel oil	.67½	.70	.67½	.70
Below 20 fuel oil	.57½	.62½	.57½	.62½
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
30-32 gas oil, zero	.02½	.02¾	.02½	.02¾
14-16 fuel oil	.70	.75	.70	.75

ARKANSAS (Ark., N. La. & Miss. del.)—				
30-32 gas oil, zero	.02½	.02¾	.02½	.02¾
32-36 gas oil	.02½	.02⅝	.02½	.02⅝
14-16 fuel oil	.70	.75	.70	.75
CHICAGO (based on Oklahoma Group 3)—				
32-36 gas oil, industrial	.01⅞	.02	.01⅞	.02
28-30 zero to 10, fuel oil	.95	1.00	.95	1.00
26-28 zero to 10, fuel oil	.85	.90	.85	.90
22-26 zero to 10, fuel oil	.75	.80	.75	.80
18-22 zero to 10, fuel oil	.65	.70	.62½	.67½
Below 18 fuel oil	.55	.60	.55	.60

Note: Fuel oils of more than 40 cold test generally 5 to 15 cents per barrel in all these areas.

PENNSYLVANIA (inland refineries)—				
36-40	.03½		.03⅝	
CALIFORNIA—				
Los Angeles:				
30-34 gas oil per bbl.	1.10	1.26	1.10	1.26
27 plus Diesel	1.10	1.15	1.10	1.15
27 plus Diesel (bunkers)	1.13	1.20	1.13	1.20
12-16 (bunkers at tidewater)	.82	.85	.82	.85
10-16 (cargo lots)	.66	.75	.66	.75
12-17 (tank cars)	.55	.80	.55	.80
San Joaquin Valley:				
10-18 (tank cars)	.50	.70	.50	.70
San Francisco:				
27 plus Diesel per bbl.	1.15	1.25	1.15	1.25
27 plus Diesel (bunkers)	1.19		1.19	
10-16 (bunkers)	.89		.89	
GULF COAST—				
28-30 gas oil	.03½	.03⅝	.03½	.03⅝
28-30 Diesel (bunkers)	1.70		1.70	
Bunker C (bulk cargoes)	.85	.90	.85	.90
Bunker C (bunkers)	.95	1.00	.95	1.00
NEW YORK (Bayonne, N. J.)—				
27 plus, gas oil	.04¼	.04½	.04¼	.04½
28-30, Diesel (lighterage 6½ cents per bbl.)	1.89		1.89	
28-30 Diesel (tank cars)	.04½	.04¾	.04½	.04¾
*Bunker C (to ocean-going ships in N. Y. harbor)	1.15		1.15	

*Lighterage charge 5 cents per barrel additional.

Neutral Oils

(Vis. at 100° F. except Pennsylvania, and color N.P.A.)

OKLAHOMA (Group 3)—	Nov. 20	Nov. 13
Zero to 10 Cold Test:		
150-3	.10	.10
180-3	.11¼	.11¼
180-4	.10¾	.10¾
200-3	.11⅝	.11⅝
200-4	.11¼	.11¼
240-3	.13⅜	.13⅜
240-4	.13¼	.13¼
280-3	.14⅜	.14⅜
280-4	.14	.14
300-3½	.15¼	.15¼
400-4	.17¼	.17¼
100-2 paraffin oil	.05¾	.05¾
15-20 Cold Test:		
200-3	.10¾	.10¾
200-4	.10¼	.10¼
240-3	.12¾	.12¾
240-4	.12¼	.12¼
280-3	.13¾	.13¾
280-4	.13	.13

GULF COAST—				
Pale Oils:				
200-3	.07¼	.07½	.07¼	.07½
300-3	.07½	.08	.07½	.08
500-3½	.08½	.09	.08½	.09
750-3½	.09	.09¼	.09	.09¼
1,200-3½	.09½	.09¾	.09½	.09¾
2,000-4	.09¾	.10	.09¾	.10
Red Oils:				
200-5-6	.07	.07¼	.07	.07¼
300-5-6	.07¼	.07½	.07¼	.07½
500-5-6	.08	.08½	.08	.08½
750	.08½	.09	.08½	.09
1,200-5-6	.09¼	.09½	.09¼	.09½

CALIFORNIA—				
Pale Oils:				
100-2½-3	.12½	.14½	.12½	.14½
200-2½-3	.12½	.14½	.12½	.14½
300-3-3½	.12½	.14½	.12½	.14½
350-3-4	.12½	.14½	.12½	.14½
400-3-4	.12½	.14½	.12½	.14½
450-3-4	.12½	.14½	.12½	.14½
550-3-4	.12½	.14½	.12½	.14½
600-3-4	.12½	.14½	.12½	.14½
Red Oils:				
200-4-5	.12½	.14½	.12½	.14½
300-5-6	.12½	.14½	.12½	.14½

350-5-6	.12½	.14½	.12½	.14½
400-5-6	.12½	.14½	.12½	.14½
450-5-6	.12½	.14½	.12½	.14½
500-5-6	.12½	.14½	.12½	.14½
600-5-6½	.12½	.14½	.12½	.14½
700-6½ plus	.12½	.14½	.12½	.14½
750-6½ plus	.12½	.14½	.12½	.14½
900-6½ plus	.12½	.14½	.12½	.14½
PENNSYLVANIA—				
150 vis. at 70° F., 3 color, 400-405 flash:				
Zero pour test	.23½	.24	.23½	.24
10 pour test	.22½	.23	.22½	.23
15 pour test	.22	.22½	.22	.22½
25 pour test	.21	.21½	.21	.21½
180 vis. at 70° F., 3 color:				
25 pour test	.24½	.25	.24½	.25
200 vis. at 70° F., 3 color:				
Zero pour test	.30	.30½	.30	.30½
10 pour test	.29	.29½	.29	.29½
15 pour test	.28½	.29	.28½	.29
25 pour test	.27½	.28	.27½	.28

Bright and Steam Refined Stocks

OKLAHOMA (Group 3)—	Nov. 20		Nov. 13	
Bright Stocks:				
190-200 D	.17		.18	
150-160 D, 0-10	.14		.15	
150-160 D, 10-25	.13½		.14½	
150-160 24-40	.13		.14	
150-160 E	.13		.14	
Steam refined:				
630 light green (treated)	.08½	.09	.08½	.09
600 light green (untreated)	.06	.08	.06	.08
600 dark green (untreated)	.04½	.07	.04½	.07
PENNSYLVANIA—				
Bright Stocks (Pennsylvania grade, No. 8 color, 145-50 at 210; 540-550 flash):				
10 pour test	.20	.21½	.20½	.22
15 pour test	.19	.21	.19½	.21½
20 pour test	.18½	.20½	.19	.21
25 pour test	.16	.17	.16½	.18
Steam refined:				
600	.08½	.09½	.09½	.10½
650	.12	.12½	.13	.13½
600 Pennsylvania flash	.13	.14	.14	.14½
630 flash	.17	.18	.18	.18½
600 Warren E filtered	.13	.14	.14	.14½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—	Nov. 20		Nov. 13	
124-126 white crude scale	.03¼	.03⅜	.03¼	.03⅜
PENNSYLVANIA—				
122-124	.0325	.0330	.0325	.0330
124-126	.0330	.0335	.0330	.0335
NEW YORK—				
Wax (a.m.p.) in bags fully refined:				
120-122	.0420	.0430	.0420	.0430
123-125	.0440	.0460	.0440	.0460
125-127	.0445	.0470	.0445	.0470
130-132	.05	.0510	.05	.0510
133-135	.0545	.0570	.0545	.0570
135-137	.0570	.0595	.0570	.0595
124-126 crude scale	.03⅛	.03¼	.03⅛	.03¼
Petrolatum in barrels in carload lots:				
Dark green	.01⅞		.01⅞	
Amber	.02⅞	.03	.02⅞	.03
Extra amber	.03	.03⅛	.03	.03⅛
Lily white	.06⅝	.06¾	.06⅝	.06¾
Snow white	.07¾	.07⅞	.07¾	.07⅞
Cream	.05⅝	.05¾	.05⅝	.05¾
CHICAGO (f.o.b. switching district)*—				
122-124 wax	.0490	.0500	.0490	.0500
125-127 wax	.0515	.0525	.0515	.0525
127-129 wax	.0520	.0530	.0530	.0540
130-132 wax	.0590	.0600	.0590	.0600
132-134 wax	.0615	.0625	.0615	.0625

*Cents per pound on carlot orders in burlap bags of 225 lbs. approx. Add 3° F. a.m.p.

Export Prices

GASOLINE

GULF COAST—	Nov. 20	Nov. 13
U. S. Motor	.03⅞	.03⅞
60-62 400	.04	.04
61-63 390	.04⅛ .04¼	.04⅛ .04¼
64-66 375	.04⅜	.04⅜
LOS ANGELES, CALIF.—		
U. S. Motor grades:		
53-55 octane	.04 .04¼	.04 .04¼
55-65 octane	.04¼ .04½	.04¼ .04½
65-67 octane	.04½ .04¾	.04½ .04¾
67-69 octane	.04¾ .05	.04¾ .05
Above 69 octane	.05 .05¼	.05 .05¼
58-60 400 endpoint	.04¾ .05½	.04¾ .05½

KEROSENE

GULF COAST—		
41-43 prime white	.03⅞	.03⅞
41-43 water white	.04	.04
44 water white	.04⅛	.04⅛
LOS ANGELES, CALIF.—		
41-43 water white	.04¼ .04¾	.04¼ .04¾

LUBRICANTS

NEW YORK (f.a.s. in bbls.)—				
Cylinder Stocks:				
600 Warren E	.20	.21	.20	.20¼
600 S.R. unfiltered	.15	.15½	.15½	.16
650 S.R. unfiltered	.18	.18½	.18	.18½
600 flash S.R.	.19	.19½	.19	.19½
630 flash S.R.	.23	.23½	.23	.23½
Bright Stocks:				
8 color	.22	.23	.22½	.23
6½ plus color, in dilution	.21½	.22	.21½	.22

NEUTRAL OILS

200-3 color	.34	.35	.34	.35
150-3 color	.27	.28	.27	.28

PARAFFIN WAX (Fully Refined)

NEW YORK (prices per pound)—				
120-122 a.m.p.	.0405	.0425	.0405	.0425
123-125 a.m.p.	.0435	.0455	.0435	.0455
125-127 a.m.p.	.0440	.0465	.0440	.0465
128-130 a.m.p.	.04¾	.0490	.04¾	.0490
130-132 a.m.p.	.0495	.0505	.0495	.0505
133-135 a.m.p.	.0540	.0565	.0540	.0565
135-137 a.m.p.	.0565	.0590	.0565	.0590

Crude Oil Gravity Table

Gravity—	1 Oklahoma and Kansas	2 North Texas, Central Texas and East Central Texas	3 North Louisiana and Arkansas	4 Gray County, Texas	5 Carson, Hutchinson and Moore Counties, Texas	6 Conroe, Texas	7 Salt Creek, Wyo.	8 Gulf Coast, Texas and Louisiana	9 Gulf Coast, Texas and Louisiana	10 Cotton Valley, Louisiana
Below 20	....	....	....	....	....	....	....	$.82	$.82	....
20-20.9	....	....	....	....	....	....	....	.84	.84	....
21-21.9	....	....	....	....	....	....	....	.86	.86	....
22-22.9	....	....	....	....	....	....	....	.88	.88	....
23-23.9	....	....	....	....	....	....	....	.90	.90	....
24-24.9	....	....	....	....	....	....	....	.92	.92	....
Below 25	*$.76	....	....	....	....	....	....	....	....	$.70
25-25.9	*.78	....	....	....	....	....	....	.94	.94	.72
26-26.9	*.80	....	....	....	....	....	....	.96	.96	.74
27-27.9	*.82	....	....	....	....	....	....	.98	.98	.76
28-28.9	*.84	....	....	....	....	....	....	1.00	1.00	.78
Below 29	.84	$.79	$.79	....	....	....	$.84	....	....	....
29-29.9	.86	.81	.81	....	....	....	.86	1.02	1.02	.80
30-30.9	.88	.83	.83	....	....	....	.88	1.04	1.04	.82
31-31.9	.90	.85	.85	....	....	....	.90	1.06	1.05	.84
32-32.9	.92	.87	.87	....	....	....	.92	1.08	1.06	.86
33-33.9	.94	.89	.89	....	....	....	.94	1.10	1.07	.88
34-34.9	.96	.91	.91	....	....	....	.96	1.12	1.08	.90
Below 35	....	....	....	$.79	$.69	....	....	....	....	....
35-35.9	.98	.93	.93	.81	.71	$1.09	.98	1.12	1.09	.92
36-36.9	1.00	.95	.95	.83	.73	1.11	1.00	1.12	1.10	.94
37-37.9	1.02	.97	.97	.85	.75	1.13	1.02	1.12	1.11	.96
38-38.9	1.04	.99	.99	.87	.77	1.15	1.04	1.12	1.12	.98
39-39.9	1.06	1.01	1.01	.89	.79	1.17	1.06	1.12	1.13	1.00
40 and over	1.08	1.03	1.03	.91	.81	1.19	1.08	1.12	1.14	1.02

Note—On November 6, Kanotex Refining Co. and Globe Oil & Refining Co. resumed the Oklahoma-Kansas price schedule shown in Column 1 in the table, making the prices retroactive to October 25, which was the day they cut their prices 46 cents per barrel.

*The following companies purchasing crude oil in Kansas or Oklahoma, or both, begin their price schedule: Below 25°, 76 cents; 25-25.9°, 78 cents, with 2 cents added for each degree upward to 40 and over at $1.08; Carter Oil Co., Magnolia Petroleum Co., Pure Oil Co., Rock Island Refining Co., Shell Petroleum Corp., Sinclair Prairie Oil Marketing Co., Skelly Oil Co., and Wilcox Oil & Gas Co. All others begin their schedules at below 29°, 84 cents, excepting Phiitex Oil Co., which begins with below 31° at 88 cents.

Column 1—Effective September 29, Texas Co. of Oklahoma; Stanolind Crude Oil Purchasing Co. in Kansas and Oklahoma; Anderson & Prichard, Inc., in Oklahoma; Bell Oil & Gas Co. in Oklahoma; Carter Oil Co. in Oklahoma and Kansas; Deep Rock Oil Co. in Oklahoma; Derby Oil Co. in Kansas; Globe Refining Co. in Oklahoma; Golden Rule Refining Co. in Kansas; Gypsy Oil Co. in Oklahoma and Kansas; Kanotex Refining Co. in Kansas; Magnolia Petroleum Co. in Oklahoma; Mid-Continent Petroleum Corp. in Oklahoma; National Refining Co. in Kansas and Oklahoma;; Shell Petroleum Corp. in Kansas and Oklahoma; Sinclair Prairie Oil Marketing Co. in Kansas and Oklahoma; Texas Co. in Oklahoma; Tide Water Oil Co. in Oklahoma; Vickers Refining Co. in Kansas; Continental Oil Co. in Kansas and Oklahoma; Empire Pipe Line Co. in Oklahoma and Kansas; Phiitex Oil Co. in Kansas and Oklahoma; Pure Oil Co. in Oklahoma; Skelly Oil Co. in Kansas. Effective September 29, by White Eagle Oil Corp. in Kansas; October 1 by Barnsdall Refineries, Inc., in Oklahoma.

Column 2—Effective September 29, by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Bell Oil & Gas Co., Continental Oil Co. Effective September 29, in the Van Pool, Van Zandt County, Pure Oil Co. posted below 29°, 84 cents, with 2 cents added for each degree up to 40 and over at $1.08.

Column 3—Effective September 29, by Texas Co., Magnolia Petroleum Co., Gulf Refining Co. Effective December 22, Stanolind Oil & Gas Co. in Pine Island, Louisiana, and Marion County, Texas, posted below 29°, 79 cents, with 2 cents added for each degree up to 40 and over at $1.01. Effective March 17, 1934, by Standard Oil Co. of Louisiana and Louisiana Oil Refining Co. Starting with below 25°, 71 cents, adding 2 cents for each degree upward to 40 and over at $1.03.

Column 4—Effective September 29, by Texas Co., Humble Oil & Refining Co., Magnolia Petroleum Co., Sinclair Prairie Oil Marketing Co., and H. F. Wilcox Oil & Gas Co. On same day Phiitex Oil Co. posted below 31°, 71 cents, with 2 cents added for each degree up to 40 and over at 91 cents. Effective June 1, 1934, Texas Co. (see note above).

Column 5—Effective September 29, by Texas Co., Humble Oil & Refining Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Wilcox Oil & Gas Co., Continental Oil Co. On same day, Phiitex Oil Co. posted below 31°, 61 cents, with 2 cents added for each degree upward to 40 and over at 81 cents. Effective June 1, 1934, Texas Co. (see note above).

Column 6—Effective September 29, by Humble Oil & Refining Co. and Tide Water Oil Co. and on September 30, by Texas Co., which on September 29 had posted a schedule of $1.07 to $1.12 with a 1-cent spread on each degree.

Column 7—Effective September 29, by Stanolind Oil & Gas Co.

Column 8—Effective September 29, by Humble Oil & Refining Co., Gulf Pipe Line Co., Shell Petroleum Corp., Pure Oil Co., Sinclair Prairie Oil Marketing Co. On October 2, Magnolia Petroleum Co. posted Lockport, Louisiana; 20-20.9°, 84 cents with 2 cents added for each degree upward to 34 and over at $1.12, and in Cameron Meadows and Iowa, Louisiana; below 20°, 72 cents with 2 cents added for each degree up to 34 and over at $1.02. These prices were 2 cents higher on each degree than Magnolia prices posted on September 29. Effective September 29, Shell Petroleum Corp. posted in Iowa, Louisiana, district: Below 20°, 70 cents, with 2 cents added for each degree upward to 34° and over at $1; and in Black Bayou and White Castle, Louisiana: Below 20°, 80 cents, with 2 cents added for each degree upward to 34° and over at $1.10.

Column 9—Effective September 30, Texas Co. (On September 29, Texas Co. had posted a schedule of 2 cents on each degree, but changed it on September 30.)

Column 10—Effective September 29, by Louisiana Oil Refining Co.

(California Crude Oil Prices on Page 54)

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

East Texas $1.00
Corsicana (heavy) (June 17, 1933)* ..... .80
Other fields ..... (See gravity table)

Note—In East Texas, effective September 29, 1933, by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Shell Petroleum Corp., Gulf Pipe Line Co., Tide Water Oil Co., Sinclair Prairie Oil Marketing Co., Magnolia Petroleum Co., Sun Oil Co., Panola Pipe Line Co., Empire Oil & Refining Co., and Atlas Pipe Line Co. posted 60 cents per barrel in East Texas, but on November 3 resumed its posted price of $1 per barrel, making it retroactive to October 22.

*Magnolia Petroleum Co.

West Texas

Crane, Upton, Crockett, Howard, Glasscock, Mitchell (Sept. 29, 1933) ..... $.70
Ector, Winkler and Pecos Counties and Lea County, New Mexico (Sept. 29, 1933) ..... .75
Pecos County, Yates shallow Pool (Sept. 29, 1933)* ..... .65
Jones and Fisher Counties*. See gravity table

Note—Effective September 29, 1933, by Humble Oil & Refining Co., Texas Co., Gulf Pipe Line Co., Shell Petroleum Corp., Magnolia Petroleum Co., and by Stanolind Oil & Gas Co. in Winkler County, Texas.

*Shell Petroleum Corp.

Gulf Coast

Grade A and Grade B specifications discontinued by leading buyers.
..... (See gravity table)
Tomball (see note)* $1.10
Livingston (Sept. 29, 1933)† 1.00
Cleveland (Jan. 11, 1934) 1.00
Greta (Sept. 29, 1933) ..... .85
Refugio, light ..... (See gravity table)
Refugio, heavy (Sept. 29, 1933)‡ ..... .85
Markham and High Island ..... (See Gulf Coast gravity table)
Conroe ..... (See Conroe gravity table)
Bosco, La. (Oct. 15, 1934)§ $1.02

Note—Tomball, effective September 29, by Humble Oil & Refining Co. and October 2 by Magnolia Petroleum Co., and November 10 by Stanolind Oil & Gas Co.

*Greta posted by Texas Co. †Shell Petroleum Corp. ‡Refugio heavy by Humble Oil & Refining Co. Cleveland (Liberty County) posted by Magnolia Petroleum Co. §Bosco posted by Pure Oil Co.

South Central and Southwest Texas

(See note below table)

Darst Creek ..... $.87
Mirando ..... .80
Luling (Sept. 29, 1933) ..... .75
Pettus 1.05
Salt Flat ..... .87
Lytton Springs (Sept. 29, 1933) ..... .95
Duval County (Sept. 29, 1933) ..... .80
Saxet ..... .85

Note—Effective on September 29 by Humble Oil & Refining Co. in Darst Creek, Mirando, Pettus, Salt Flat and Saxet. Effective September 29 in Darst Creek by Gulf Pipe Line Co. and Texas Co. Effective October 2 by Magnolia Petroleum Co. Effective in Pettus and Salt Flat on September 29 by Humble Oil & Refining Co. and Gulf Pipe Line Co. Luling and Lytton Springs by Magnolia Petroleum Co. Duval County by Texas Co. Saxet, effective September 29, by

(Continued on Page 54)

TANK WAGON MARKETS

Quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, include taxes

November 20, 1934

Taxes

The gasoline quotations given in the following tables include the 1-cent Federal tax, as well as state, county and city taxes. The gasoline quoted is the regular or standard grade. In most marketing areas a third grade and a premium grade are also available.

Discounts

Under the standard form of commercial consumer contract which went into effect March 1, 1934, save in California, Oregon, Washington, Arizona and Nevada, a discount of 1 cent a gallon off tank wagon or 2 cents a gallon off retail prices is permitted for purchases running between 4,000 and 10,000 gallons a month, or 4 cents a gallon off retail prices for purchases in lots of more than 10,000 gallons a month. The minimum delivery is 25 gallons.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Denver, Colo...	18.0	20.0	5.0	12.5
Pueblo	18.0	20.0	5.0	11.0
Grand Junction	20.5	22.5	5.0	15.0
Casper, Wyo. ..	18.0	20.0	5.0	11.5
Cheyenne	18.0	20.0	5.0	13.0
Butte, Mont. ..	21.0	23.0	5.0	17.5
Billings	21.0	23.0	6.0	16.5
Helena	23.0	25.0	6.0	17.5
Great Falls ...	21.5	23.5	6.0	17.5
Salt Lake, Utah	19.0	21.0	5.0	16.0
Boise, Idaho ..	22.5	24.5	6.0	18.0
Twin Falls	22.5	24.5	6.0	18.0
Albu'que, N. M.	18.0	20.0	*7.0	13.0

*One-cent city tax.

Effective March 1, 1934, discount to dealers with or without contract throughout Continental territotry: Undivided dealer discount off service station price, 4 cents; divided dealer accounts, 3½ cents.

Standard Oil Co. (Indiana)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Chicago	12.8	12.8	4.0	8.0
Decatur, Ill. ..	14.4	9.9	4.0	10.2
E. St. Louis ...	14.1	11.0	4.0	9.5
Joliet	14.5	16.5	4.0	10.2
Peoria	14.4	11.5	4.0	10.2
Quincy	12.9	14.9	4.0	10.0
Davenport, Ia..	14.2	14.0	4.0	10.1
Des Moines ..	14.1	16.1	4.0	10.1
Mason City ...	14.4	16.4	4.0	10.1
Sioux City	14.3	16.3	4.0	9.7
Duluth, Minn. .	15.0	17.0	4.0	10.4
Mankato	14.7	16.7	4.0	9.5
Minneapolis ...	15.7	13.4	4.0	10.4
LaCrosse, Wis..	15.7	17.7	4.0	10.8
Green Bay	15.9	17.9	5.0	10.2
Milwaukee	14.6	16.6	5.0	9.0
Madison	15.7	16.3	5.0	9.9
Detroit, Mich. .	15.0	17.0	4.0	10.5
Grand Rapids .	14.7	16.7	4.0	10.2
Saginaw	15.0	17.0	4.0	10.5
Evansville, Ind.	13.5	12.5	5.0	10.0
Indianapolis ..	16.1	18.1	5.0	10.2
South Bend ...	16.4	18.4	5.0	9.0
Fargo, N. Dak.	15.7	17.7	4.0	11.4
Huron, S. Dak.	16.2	18.2	5.0	11.4
Sioux Falls ...	15.6	17.6	5.0	10.9
Kans. C., Mo.*	13.6	15.6	4.0	7.5
Springfield	13.2	15.2	4.0	8.2
St. Louis	13.7	12.5	3.5	8.7
St. Joseph*	13.6	15.6	4.0	7.8
Wichita, Kans..	13.2	15.2	4.0	7.5
Bartlesville, Ok.	15.7	18.2	5.0	8.5

*State tax 2 cents, 1-cent city tax and 1-cent Federal tax.

Discounts to dealers, effective March 1, 1934: Undivided accounts, 4 cents a gallon on Red Crown Ethyl and Standard Red Crown, divided accounts, 3½ cents a gallon on Red Crown Ethyl and Standard Red Crown.

Stanolex Furnace Oil in Chicago

Effective Nov. 4, 1934, f.o.b. Chicago tank wagon prices: No. 1 (36-40 lt. stw. zero), less than 100 gallons, 8¼ cents; 100-149 gallons, 7¼ cents; 150 gallons or more, 6½ cents; No. 2 (30-34, stw. zero), less than 150 gallons, 7¼ cents; No. 3 (22-26, zero), less than 150 gallons, 7 cents; No. 4 (12-16 zero), less than 400 gallons, 6½ cents; viscosity of No. 4, 85 at 100° F.; No. 5, less than 400 gallons, 5¾ cents. For deliveries of more than stated quantities of Nos. 2, 3, 4 and 5, deduct 1 cent.

Naphtha

	Tank wagon*
Oleum spirits	16.9
1-cent Federal tax.	
V.M.&P. naphtha	18.0
Cleaners' naphtha	18.0
Stanisol	18.0

*Prices include 3-cent Illinois tax, but not Prices f.o.b. Chicago, September 13, 1933. Each of above prices subject to discount of 1 cent per gallon for 150-gallon lots if covered by contracts.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atlanta, Ga. ..	14.5	15.5	7.0	14.5
Augusta	15.5	16.5	7.0	14.5
Macon	16.0	17.0	7.0	14.5
Savannah	17.0	19.0	7.0	14.0
Birm'ham, Ala.	19.0	21.0	8.0	14.0
Mobile	16.5	17.5	8.0	12.0
Montgomery ..	17.0	18.0	8.0	15.0
Jackson, Miss..	17.5	19.5	8.0	13.0
Vicksburg	17.5	19.5	7.0	12.0
Jack'ville, Fla..	18.0	20.0	8.0	11.5
Miami	18.0	20.0	8.0	13.5
Pensacola	15.5	16.5	8.0	13.5
Tampa	18.0	20.0	8.0	12.5
Lexington, Ky..	16.5	18.5	6.0	11.5
Covington	14.5	15.5	6.0	11.5
Louisville	16.0	18.0	6.0	11.0
Paducah	16.0	18.0	6.0	11.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 2 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia and Mississippi include 1 cent state tax; in Alabama, an inspection fee of one-half cent on kerosene and one-fortieth cent on gasoline; in Florida an inspection fee of one-eighth cent on kerosene and gasoline. To Pensacola, Mobile and Birmingham state taxes on gasoline add 1 cent city tax.

Southwestern District

MAGNOLIA PETROLEUM CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Dallas, Tex. ...	11.0	13.0	5.0	6.0
Fort Worth ...	12.0	14.0	5.0	6.0
Houston	13.0	15.0	5.0	8.5
San Antonio ..	16.0	18.0	6.0	8.5
El Paso	17.0	19.0	5.0	11.0
Muskogee, Ok...	16.0	18.0	5.0	6.0
Okla. City	15.0	17.0	5.0	7.0
Tulsa	16.0	18.0	5.0	7.5
Ft. Smith, Ark.	14.5	16.5	5.0	8.0
Little Rock	17.0	19.0	7.5	9.0
Texarkana	14.0	16.0	5.0	8.0

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atl'tic City, N.J.	9.5	12.0	4.0	10.0
Newark	7.4	9.9	4.0	8.5
Annapolis, Md..	12.6	15.6	5.0	10.0
Baltimore	10.5	13.0	5.0	9.5
Cumberland ...	14.0	17.5	5.0	12.7
Wash'g'n, D. C.	9.0	11.5	3.0	11.5
Danville, Va. ..	13.5	16.0	6.0	12.9
Norfolk	12.2	14.7	6.0	11.3
Petersburg	12.3	14.8	6.0	11.4
Richmond	12.3	14.8	6.0	11.7
Roanoke	13.3	15.8	6.0	12.9
Charls'n, W.Va.	14.0	17.5	5.0	12.6
Parkersburg ..	12.3	15.3	5.0	11.2
Wheeling	14.0	17.5	5.0	12.2
Charlotte, N. C.	16.4	18.9	7.0	13.5
Hickory	15.5	18.0	7.0	13.7
Mt. Airy	17.0	20.0	7.0	13.8
Raleigh	15.5	18.0	7.0	13.2
Salisbury	13.5	15.0	7.0	13.6
Charleston, S.C.	15.2	18.7	7.0	11.2
Columbia	14.9	17.4	7.0	13.2
Spartanburg ..	14.5	17.0	7.0	13.5

Effective October 23, tank wagon gasoline refers to dealer instead of retail prices.

Price basis to dealers: Divided dealers at dealer price, which is 2¼ cents above tank car; undivided dealers at regular price less one-half cent. Discount for kerosene, 1 cent off tank wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except in New Jersey, where no discount is given.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Omaha	15 6	17.4	5.0	10.0
McCook	16.3	17.9	5.0	10.0
Norfolk	16.0	17.9	6.0	10.4
North Platte ..	16.4	18.3	5.0	8.0
Scottsbluff	17.1	18.3	5.0	9.0

Note—Discount to dealers, including any rentals under lease and agency agreements: Undivided accounts, Standard Red Crown and Red Crown Ethyl Gasoline 4 cents. Reliance (third brand) 3 cents, under service station price. Divided accounts, Standard Red Crown Ethyl Gasoline 2¼ cents. Reliance (third brand) 2½ cents under service station price. Discounts to consumers covered only by form CD-1, official commercial consumer contract.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
N. Orleans, La.	15.8	19.3	‡8.0	†10.0
Baton Rouge ..	13.7	16.7	6.0	†12.0
Alexandria	14.4	17.4	*7.0	†10.0
Lafayette	14.4	17.4	*7.0	†12.0
Lake Charles ..	14.4	17.4	*7.0	†12.0
Shreveport	13.0	16.5	6.0	†10.0
Knoxville, Tenn.	15.0	17.5	8.0	13.5
Memphis	12.9	15.4	8.0	10.5
Chattanooga ..	13.5	16.0	8.0	11.0
Nashville	12.9	15.4	8.0	12.0
Bristol	12.9	15.4	8.0	14.0

*Includes city tax of 1 cent. †Louisiana kerosene prices include 1-cent state tax. ‡Includes 2-cent parish tax.

Effective October 23, tank wagon gasoline refers to dealer instead of retail prices.

Price bases to dealers: Divided dealers at dealer price, which is 2½ cents above tank car; undivided dealers at dealer price less one-half cent.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA*

	Gasoline: Tank wagon†	Gasoline: Posted retail	Gasoline: Incl'ds tax of	Kero. tank wagon
San Francisco .	16.5	18.5	4.0	12.5
Los Angeles ..	15.5	17.5	4.0	12.5
Fresno, Calif. ..	17.0	19.0	4.0	14.0
Phoenix, Ariz..	17.0	19.0	6.0	‡16.0
Reno, Nev.	19.0	21.0	5.0	15.5
Portland, Ore. .	19.0	21.0	6.0	13.5
Seattle, Wash..	19.0	21.0	6.0	13.5
Tacoma	19.0	21.0	6.0	13.5
Spokane	22.0	24.0	6.0	18.0

*Retail prices posted by Standard Stations, Inc., a subsidiary.

†Prices are at company's plant or depots, as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent. ‡Includes 5-cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Phil'delphia,Pa.	13.5	14.5	4.0	9.0
Pittsburgh	14.0	16.0	4.0	10.0
Allentown	13.25	15.0	4.0	10.0
Erie	14.0	16.0	4.0	9.0
Scranton	13.25	15.0	4.0	10.0
Altoona	14.0	16.0	4.0	10.0
Dover, Del. ...	13.25	15.0	4.0	10.0
Wilmington ...	13.25	15.0	4.0	9.0
Springf'd, Mass	14.5	16.5	4.0	7.5
Worcester	14.5	16.5	4.0	8.5
Hartford, Conn.	13.5	15.5	3.0	7.5
New Haven ...	13.5	15.5	3.0	7.5
Providence, R.I.	13.0	15.0	3.0	7.5

Note—Tank wagon prices are those applicable to consumers purchasing lots of 100 or more gallons in one delivery.

New York and New England

SOCONY-VACUUM CO., INC.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Albany, N. Y..	15.5	16.5	4.0	8.5
Met. New York	16.0	17.0	4.0	8.0
Buffalo	13.0	13.0	4.0	8.0
Rochester	13.5	13.5	4.0	8.5
Syracuse	16.0	17.0	4.0	8.75
Boston, Mass. .	15.0	16.0	4.0	8.0
Portland, Me. .	17.0	18.0	5.0	8.75
Manch't'r, N.H.	17.0	18.0	5.0	9.0
Burlington, Vt.	18.5	19.5	5.0	9.0

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Ohio points ...	15.5	17.5	5.0	*12.5

*Includes state tax of 1 cent, effective July 23.

Canada*

IMPERIAL OIL, LTD.

Imperial 3-Star Gasoline

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Hamilton Ont..	†21.0	23.5	6.0	17.5
Toronto, Ont...	†21.0	23.5	6.0	17.5
Brandon, Man..	30.3	33.3	7.0	21.8
Winnipeg, Man.	28.7	31.7	7.0	20.3
Regina, Sask..	29.0	32.0	6.0	21.5
Saskatoon, Sask.	31.8	34.8	6.0	24.1
Edmonton, Alta.	31.2	34.2	6.0	23.7
Calgary, Alta..	28.5	31.5	6.0	21.0
Vancouver, B.C.	27.0	30.0	7.0	24.0
Montreal, Que..	24.0	27.0	6.0	17.0
St. John, N.B..	26.0	30.0	8.0	21.0
Halifax, N. S. .	26.0	30.0	8.0	21.0

*Imperial gallon used in Canada. †Governed by service station price.

Maritime provinces, all dealers 4 cents off service station price. All other provinces open dealers 2.5 cents off service station price and 1 cent additional to 100 per cent accounts.

Retail Price Changes

Regular-Grade Gasoline and Kerosene

Standard Oil Co. of Indiana, November 14, advanced station gasoline 2 cents in Peoria, then reduced it one-half cent.

Standard Oil Co. of Louisiana, November 8, reduced tank wagon and station gasoline 0.2 cent in Alexandria; reduced tank wagon and station 0.3 cent in Lake Charles. October 13, reduced tank wagon gasoline one-half cent and station gasoline 1 cent in Lafayette; November 8, reduced tank wagon and station gasoline 0.4 cent. November 13, advanced tank wagon gasoline 3.8 cents and station gasoline 4.8 cents in New Orleans. Orleans Parish, November 1, levied an additional tax of 1 cent per gallon making the total tax applying on New Orleans prices 8 cents per gallon.

Standard Oil Co. of New Jersey, November 3, reduced tank wagon gasoline 1.5 cents and station gasoline 2.5 cents in Danville. November 5, reduced tank wagon gasoline 0.6 cent and station gasoline 1.6 cents in Charlotte.

Standard Oil Co. of Kentucky, November 12, advanced tank wagon and station gasoline one-half cent in Covington. November 14, advanced tank wagon gasoline 1.5 cents and station gasoline 2.5 cents in Louisville; advanced tank wagon gasoline 2 cents and station gasoline 3 cents in Lexington; advanced tank wagon gasoline 3 cents and station gasoline 4 cents in Paducah; advanced tank wagon gasoline one-half cent and station gasoline 1.5 cents in Vicksburg; advanced tank wagon and station gasoline one-half cent in Mobile and Montgomery.

Standard Oil Co. of Nebraska, November 10, reduced tank wagon kerosene 0.7 cents in McCook.

Atlantic Refining Co., November 16, advanced tank wagon gasoline 2 cents and station gasoline 3 cents in Philadelphia. November 10, advanced tank wagon gasoline 1 cent and station gasoline 1.5 cents in Pittsburgh; advanced tank wagon gasoline three-quarters cent and station gasoline 1 cent in Erie and Altoona.

Socony-Vaccum Oil Co., Inc., November 20, reduced tank wagon kerosene one-half cent in metropolitan New York. November 20 reduced tank wagon kerosene 1 cent in Buffalo. November 10, reduced tank wagon gasoline one-half cent and station gasoline 1½ cents in Rochester. November 19, advanced tank wagon kerosene one-half cent in Boston. November 6, advanced tank wagon and station gasoline 1 cent in Manchester.

SAM FORDYCE LINE

HOUSTON, Tex., Nov. 19.—Pipe line facilities to handle crude oil in the Sam Fordyce Field will be built by the Woodsfield Pipe Line Co. Organizers of the company are Otto Woods, discoverer of the field, Ben King and others interested in the King-Woods Oil Co. A 14-car loading rack has been completed.

NEWS FOR SALES DEPARTMENTS

Road Oil Congress Studies Highway Building Plans

With the best program in its history the fourth annual National Road Oil Congress will open November 22 for a two-day session in Tulsa, said William B. Way, general chairman of the International Petroleum Exposition and chairman of the executive committee of the congress.

Experts will discuss "black top" or bituminous asphalt surfacing made from petroleum which is all-weather, hard-surfaced, dust-free, and low in initial and maintenance cost.

The first highway use of oil was merely to sprinkle it on dirt roads to allay the dust. Then followed a special mix made of oil and gravel aggregate, used spasmodically and with indifferent success due to the unsuitability of the oil used and the lack of knowledge of the proper subsurface structure. Experiments over a period of years, however, on the part of oil companies, highway engineers, and U. S. Bureau of Public Roads has provided the proper ingredients and knowledge of mix to insure universal use of "black top" roads in all climates and with almost any kind of local aggregate available.

Oil or "black top" roads fall into several different classifications. There are the new ones, built for both heavy and light traffic; black top surfacing put over old gravel roads; and those put over cracking and disintergrating concrete beds. A success has been made in several states of the so-called "stage construction" roads. By this is meant laying a light surface structure on a highway where traffic is light and adding to the road bed as traffic increases. This provides a hard-surface highway at a cost commensurate with the traffic needs.

Records comparing original and maintenance cost between the bituminous and concrete highways as taken from the Kansas State Highway Records for the fiscal year ending June 30, 1934, show:

	Rigid slab	Asphalt paving
Cost per mile to build..	$24,710.00	$2,342.00
Interest on investment..	988.40	93.68
Yearly bond payment ..	1,016.98	96.39
Yearly maintenance ...	300.82	516.86
	$2,306.20	$706.93
Less gravel road maintenance saved	429.00	429.00
Net total annual cost per mile	1,877.20	277.93

Ten miles of asphalt mat cost only $2,779.30 per year while 10 miles of rigid slab cost $18,772.

Asphalt or bituminous black top paving in Kansas cost about one-tenth as much to construct as rigid slab. Upkeep on lowest cost type of asphalt paving, plus additional by stage construction, costs only a trifle more than the cost of repairing the most expensive pavements. Each year each mile of asphalt pavement costs Kansas only a small fraction as much in taxes as rigid slab.

Considering it from another angle the life of rigid slab is usually estimated at 20 years and this estimate is generous. Low cost black top types last as long as they are maintained. At the end of 20 years, if properly maintained, the original material plus nearly all added material will still be there, the salvage value being nearly 100 per cent. After 20 years the original cash cost of rigid slab, not even including interest or extras, will be nearly $18,000 per mile more than all construction, maintenance and improvement costs on asphalt pavements. This comparison makes no allowance for the fact that asphalt or

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NEW AVIATION LUBRICANT

The new Clearosol process for refining motor oils, recently announced by the Socony-Vacuum Oil Co., Inc., is extended to include aviation oils.

Due to this process it is now possible to market a product that will greatly reduce wear of moving parts, and insure unusual freedom from ring gumming, excessive carbon deposits and sludge formation in the engine due to the oil.

Because of these facts, aviation engineers see in this new process in refining Aero Mobiloil, a decided step forward in the promoting of greater economy and safety of operation as well as in the assurance of better performance.

OIL MEN'S CLUB TO MEET

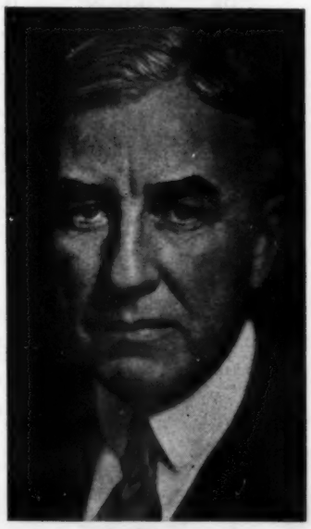
The annual bridge party of the Chicago Oil Men's Club is scheduled for the Chicago Athletic Club Thursday, November 22, beginning at 6 p. m., according to announcement by Charles P. Hirth, Hughes Oil Co., chairman of the club's entertainment committee. It is expected this will be the organization's outstanding social event of the year. A dinner and valuable prizes are on the program, and also several novel features never before attempted at any bridge party.

N.O.B.D.A. Wins Case on Oil Burner Installation

In a decision handed down on November 14, by Justice Furman of the Supreme Court of the State of New York, the newly organized National Oil Burner Dealers Association won a signal victory which releases hundreds of dealers in the five boroughs of New York from interference of the building department of New York and which places sole jurisdiction in the hands of the fire department.

"This decision, upholding our contention that the building commissioners had no right to place violations against installations approved by the fire department, not only means that the new dealers association can make its voice heard but it means freedom for the dealer from political interference," stated A. W. Clark, executive director of the N.O.B.D.A. "It can be conservatively estimated that sales totaling close to 10,000 units have been held up in the past seven months as the result of so-called violations imposed by the building department over approval given by the fire department."

Allan Jackson » » »



ALLAN JACKSON, vice president in charge of marketing, and a member of the board of directors of Standard Oil Company (Indiana), occupies the position of supreme command in his department as the result of first-hand knowledge of its problems gained through years of experience in the ranks.

Starting in 1896 as private secretary to the general manager of sales, Mr. Jackson was appointed manager of the Mankato Field in 1905. In 1914 he was transferred to the managership at Joliet, Ill., and was promoted on January 1, 1917, to the general manager's department in Chicago. Two years later he advanced to assistant general manager of this department, and in 1920 he was elected to the board of directors and appointed to his present executive position.

Mr. Jackson finds satisfaction in having been the original advocate of two of the outstanding pioneer steps taken by his company in marketing in recent years. Upon his recommendation Standard began to handle ethylized gasoline in 1925, four years before any other company marketing in its territory followed this revolutionary measure. Early in 1932 he advocated and promoted the introduction of third grade gasoline as a means of combating price competition of companies selling fuels inferior to those the major companies were marketing.

In aviation circles Mr. Jackson is a leading figure. He has served on many boards and committees engaged in developing this new industry. He has been active in promoting improvement of petroleum fuels and lubricants for aviation engines. He has also been influential in connection with the pioneer work done by Standard Oil in promoting development of commercial aviation.

In 1934 and part of 1933 Mr. Jackson has given much of his time to the planning of the oil industry's recovery measures as a member of the marketing committee under the Planning and Coordination Committee.

RECEIVE ADVERTISERS AWARD

Award has been made to the Magnolia Petroleum Co. for excellence of advertising copy by an anonymous "Socrates" and a secret staff of 12 advertising executives. Such awards are highly coveted by members of the profession because of the great number of advertisers considered by the committee. Magnolia was the only company in the southwest selected in the first 10 group.

First Revolving Service Stations for New York

Construction has been started on two revolutionary type service stations which are said to represent the first new idea in service station design since the advent of the motor car, according to engineers of the Colonial Beacon Oil Co. The new stations, known as Rotary Servicenters, are being built at 93 Lafayette Street, between Walker and White Streets and on Sixth Avenue, between Sullivan and Spring Streets, New York. They are expected to be in operation some time this month.

"These stations are completely enclosed buildings. They are of modernistic architecture and employ a turntable which revolves at a slow speed around the pumps," Colonial Beacon engineers explained. "A motorist drives into the station and on to the turntable. In less than two minutes his car is serviced with gasoline, oil, water and air and he is on his way. There is no backing or maneuvering to get to the pumps. The station is fully enclosed and the motorist is at all times protected from the weather. In the event he requires such servicing as greasing or changing of his oil he drives off the turntable to another section of the station.

"This type of station has received the first patent ever granted on a service station. It is the result of years of study of the service station problem. It can be erected on a considerably smaller lot than the conventional service station. Adjoining property owners are benefited by the erection of a modern type building.

"We plan to erect a number of these units in metropolitan New York on an experimental basis and if the idea works out as we believe it will, it will be extended to other metropolitan areas."

SEPTEMBER COMMODITY PRICES

The following wholesale prices of commodities for the month of September, 1934, compared with September, 1933, and August, 1934, have been released by the Department of Labor:

	Index numbers (1926 = 100)		
	Sept., 1933	Aug., 1934	Sept., 1934
All commodities	70.8	76.4	77.6
Farm products	57.0	69.8	73.4
Foods	64.9	73.9	76.1
Hides and leather products	92.3	83.8	84.1
Textile products	76.9	70.8	71.1
Fuel and lighting	70.4	74.6	74.6
Metals and metal products	82.1	86.7	86.6
Building materials	82.7	85.8	85.6
Chemicals and drugs ...	72.7	75.7	76.5
House-furnishing goods .	79.3	81.8	81.8
Miscellaneous	65.1	70.2	70.2
Petroleum products	49.6	51.6	51.3

REFINING COMPANY FORMED

A company has been organized to build a modern 2,500-bbl. skimming and cracking plant at Reed Switch, west of Kilgore, according to reports from the field. The International Petroleum Co., headed by J. R. Parten, president of the Woodley Petroleum Co., Shreveport, La., and associated with S. Dayson of Baird, Tex., is the company formed to erect the plant.

Late Fields

OKLAHOMA

In the south end of the Edmond Field in Oklahoma County, Oklahoma, the Marathon Oil Co.'s No. 1 Keefer, NW NW NW Section 5-13-3w, topped Wilcox sand at 6,294 feet, set 6⅝-inch casing at 6,317 feet and passed through Wilcox at 6,523 feet penetrating green shale from that depth to 6,585 feet, where bailing was commenced. The hole was bailed to 1,400 feet off top, the well flowing for eight minutes, throwing out mud-laden fluid, and gas at the rate of 75,000,000 feet per day. Because a connection was cut the well was then shut in and in 25 minutes had rocked up a pressure of 2,250 pounds. It was to have been given another test on Tuesday, on which day this was written.

In the South Burbank Field in Osage County, the Sinclair Prairie Oil Co.'s No. 1, NE cor. Section 16-25-6, had Burbank sand at 2,830-41 feet, still in sand, and flowed 2,440 bbls. in 24 hours. This was drilled on a lease that cost the company $92,000 at the most recent Osage sale.

The Twin State Oil Co. extended the Polo Pool in Noble County a quarter of a mile north with its test in SW NW NW Section 27-20-2w, which flowed 645 bbls. in 9¾ hours from Wilcox sand at 4,867-4,925½ feet.

The Oklahoma Corporation Commission placed the production allotment for Oklahoma in December at 451,000 bbls. per day, or 7,700 bbls. a day less than in November.

KANSAS

W. C. McBride, Inc., in C SE SE NE Section 32-24-4w, Reno County, Kansas, had Hunton lime at 3,768-72 feet and the hole filled 200 feet with water in one hour. It was shut down for orders.

Skelly Oil Co.'s test in C NW NE Section 25-24-8w, Abbyville Pool, Reno County, found a showing of oil and water at 3,550-53½ feet and plugged back to 3,541 feet to test a formation at 3,527-32 feet. The swab brought up mostly water.

Wentz Oil Corp.'s test in SW SW SW Section 18-35-1e, Sumner County, will be abandoned. It had Simpson sand at 3,888 feet and 3,000 feet of water in the hole from 3,894-97 feet.

A new pool has been opened in Ellsworth County, Kansas, by the Twin Drilling Co. in SW NW SW Section 13-17-9w. Siliceous lime was topped at 3,200 feet, and at 1 foot in the hole filled 1,200 feet with oil in six hours.

CALIFORNIA

LOS ANGELES, Calif., Nov. 20.—Charles W. Fourl has completed his No. 1 Palisades, an outpost in the Playa Del Rey Field of Los Angeles Basin, flowing 3,500 bbls. of relatively clean 22 gravity oil and 1,500,000 feet of gas per day from 6,526 feet. This well extends the limits of the field southeast and opens considerable townlot area for development.

JERSEY CALLS BONDS

NEW YORK, Nov. 19.—Initiating one of the largest refunding operations of recent years, the Standard Oil Co. (New Jersey) gave notice it would redeem its $90,000,000 outstanding 5 per cent debentures next February 1 at 102 and accrued interest.

The bonds, part of an original issue of $120,000,000, were not due to mature until December 15, 1946, but the company, through Walter C. Teagle, president, said it was following its well-established policy in "making substantial reductions periodically of obligations ahead of its common stock."

MATTHEW S. SLOAN'S CAR

The private car used by 24 oil men of Tulsa in going to the A.P.I. convention at Dallas as guests of Walter Ferguson, vice president of the National Bank of Tulsa, was that of Matthew S. Sloan, president of the Missouri, Kansas and Texas Railroad.

Stripper Well Committee Considering Labor Issue

OIL CITY, Pa., Nov. 19.—W. J. Brundred of this city has been named on the committee of eight appointed to study certain proposals made by labor in connection with modification of the oil code as it applies to stripper wells. Two of the members were selected from the industry, the other being Ray M. Collins, of Tulsa. Other committeemen are H. H. Anderson and J. W. Steel, of the Planning and Coordination Committee; Harvey Fremming and Roy B. Sessions, representing labor; E. B. Swanson, of the Petroleum Administrative Board, and Dr. George W. Stocking, of the Labor Policy Board.

W. F. Clinger, of Warren, chairman of a committee appointed to make a study of labor conditions for the code oil investigation committee, notes that the Pennsylvania grade crude oil region is singularly free of disturbances in connection with labor problems. His report shows more men are employed in the northern fields, proportionately, because of the more extensive drilling operations found there. The highest wage scales in the region are shown in this section. The lowest wage scales and the most restricted employment prevail in the Middle District where production from stripper wells is at its minimum.

EMPLOYMENT AND PAY ROLL STUDY FOR PENNSYLVANIA REGION

Area—	Men employed June, 1933	Men employed July, 1934	Monthly pay roll June, 1933	Monthly pay roll July, 1934
Allegany	860	1,950	$87,000	$173,500
Bradford	2,661	5,237	279,300	589,100
Middle District	500	550	45,000	50,000
Venango-Clarion	1,450	1,500	101,500	105,000
Butler-Armstrong	1,100	1,200	101,200	114,000
Southwest Pennsylvania	400	450	35,000	40,000
Southeast Ohio	2,000	3,700	184,000	229,500
West Virginia	4,000	4,500	400,000	450,000
Total employed in production and drilling in June, 1933				13,971
Total employed in production and drilling in July, 1934				19,087
Estimated monthly pay roll for June, 1933				$1,233,056
Estimated monthly pay roll for July, 1934				1,751,204

Road Oil Congress Studies Highway Building Plans

(Continued from Page 27)

bituminous pavements, as constructed in Kansas, are 20 to 33 per cent wider than rigid slab.

Interest charges alone on the difference between surfacing costing $25,000 per mile and surfacing costing $2,500 per mile are more than enough to forever maintain and improve low cost asphalt pavements. The annual interest charges and repayment funds alone on 1 mile of rigid slab will pay for converting a new mile of graveled road into a simple type of asphalt surfaced highway.

Not only does low-cost black top surfacing make it possible to have more hard surface, more highway mileage but it makes this possible at less cost. This opens the door for lowering the gas tax without curtailing the needed highway program.

In connection with the congress, a survey has been made of American highways including plans for 1935 construction activities. The following table, compiled by E. B. Guthrey, secretary of the congress, shows anticipated consumption of road oil in practically every state.

State—	Asphalt or bituminous road mileage	Concrete or brick road mileage	Gallons road oil last year	Gallons estimated road oil this year
New Mexico	1,484	110	5,000,000	10,000,000
North Dakota	556	43	6,942,956	1,270,000
Nevada	1,339	64	4,600,000	3,000,000
Kansas	2,943	1,286	12,705,000	(*)
Texas	8,714	3,950	3,190,000	3,190,000
Indiana	3,149	3,723	16,262,000	2,700,000
South Carolina	32	2,396	400,000	750,000
New Jersey	69	1,460	203,165	94,765
Minnesota	2,672	2,552	4,000,000	8,000,000
Tennessee	1,700	4,742	1,600,000	1,600,000
Massachusetts	188	1,636	1,493,831	1,110,000
Nebraska	521	844	400,000	4,000,000
Virginia	2,687	738	21,700,000	15,000,000
West Virginia	2,151	3,344	1,500,000	4,500,000
North Carolina	2,719	4,464	5,500,140	5,500,140
New York	1,300	12,000	10,000,000	10,000,000
New Hampshire	2,475	444	7,522,687	7,400,000
Missouri	1,300	4,000	7,257,413	8,550,000
Wisconsin	1,500	5,400	9,330,000	11,500,000
Georgia	(†)	3,000	.....	.....
Alabama	‡1,900	....	.....	.....
Iowa	343	4,317	720,000	(*)
Michigan	‡4,166	....	(¶)	.....
South Dakota	586	200	3,000,000	5,000,000
Colorado	1,015	494	4,000,000	(*)
Connecticut	1,797	2,359	16,800,000	16,800,000
Montana	2,765	60	5,835,139	15,000,000
Kentucky	2,827	1,332	(*)	(*)
Pennsylvania	....	....	44,460,000	44,460,000
Vermont	....	....	(†)	(†)
Illinois	....	....	1,368,000	684,000
Idaho	1,670	344	§50,820	(*)

*No estimate. †None. ‡Brick, asphalt or concrete. ¶No data. §In barrels (306 tons).

Left: K. V. Foreman, pipe line scout for Gulf Production Co. and G. R. (Buffalo) Kennedy, scout for Magnolia Pipe Line Co., both of Tyler, Tex.

New Proration Schedule in Michigan Retroactive

MUSKEGON, Mich., Nov. 19.—The new schedule retroactive to November 1 reduces the allowable from 31,296 to 25,902 bbls. a day, or 5,394 bbls. less per day. This is slightly less than the decline of 6,133 bbls. a day in the estimated potential, which dropped from 175,149 bbls. as of October 1 to 169,016 bbls. a day as of November 1, 1934.

The estimated daily run of 25,902 bbls. is only 500 bbls. less than the actual run of 26,421 bbls. for the week ended November 10, a decrease of about 255 bbls. All actual runs as well as estimates are more than 3,000 bbls. under the Federal allowable of 29,000 bbls.

The November potential represents 90 per cent of the October figure plus new wells' gauged potentials. An increase of eight in the number of producing wells is shown in the November total of 959 compared with 951 as of October 1. Average daily potential per well showed a decline of 8 bbls. from 184.2 to 176.2.

The greatest increase in the number of producing wells from October 1 to November 1 was in Porter Township, Midland County, a jump of 11 from 261 to 272. The Ogemaw County Pool showed an increase of two producers from 19 to 21 while Leaton and Vernon Pools, Isabella County, each added one, the former increasing from 27 to 28 and the latter from 51 to 52. Oceana County Pool also increased one from 15 to 16.

DEATH OF WILLIAM K. HUGHES

William K. Hughes, president of the Continental Supply Co. for 12 years up to 1929, died in the Deaconess Hospital in St. Louis on November 3 after a brief illness. Mr. Hughes was one of the best known men in the oil equipment business. After his retirement from the presidency of the Continental Supply Co. he devoted his time to other interests, all of which were connected with the oil field supply business.

Group 3 Area Spot Business Nears Zero

(Continued from Page 22)

state distribution early this week at 2½ cents.

A tighter natural gasoline market was reported. General buying was stronger, and it was believed that the market was attaining a belated peak in view of the fact that the buying throughout recent weeks had not been as heavy as was to be expected. Moderate movement to the Gulf for export or coastwise shipment was reported. There had been a noticeable absence of this business in previous weeks.

Furnace oils were on a firm basis and prices were rising slightly but there has not yet been enough cold weather to create a really strong demand. There were said to be few buying orders for kerosene.

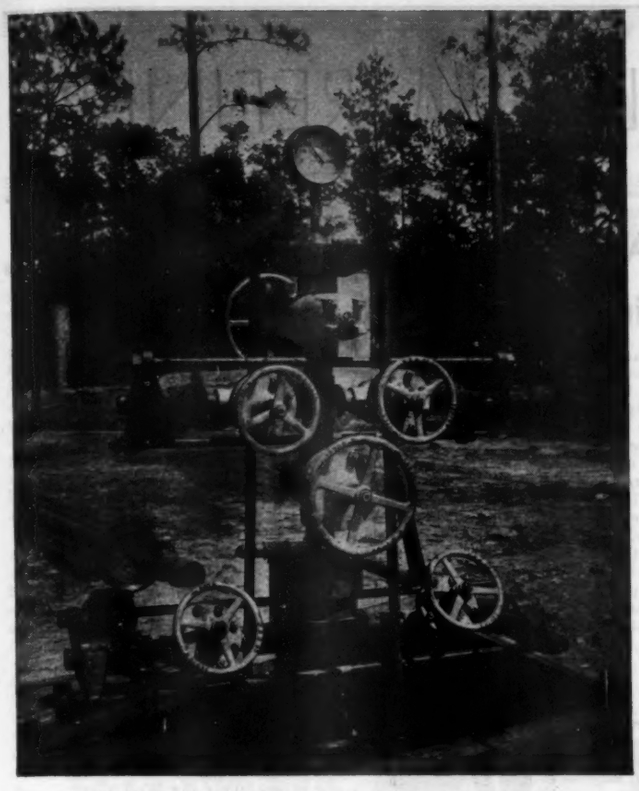
Gas oils were in fair demand, but stocks were small and little business was done in this division.

Bright stocks, keeping step with similar material in the East, dropped a cent throughout the list, although the movement of this material was reported satisfactory as was that of steam-refined stocks. Wax continued steady.

DECEMBER ALLOWABLES

WASHINGTON, D. C., Nov. 20.—Administrator Ickes today announced daily crude oil production allowables for December of 2,307,000 bbls., 33,300 bbls. under the total for November.

Production allowables for each producing state follow: Arkansas, 29,000 bbls.; California, 456,800 bbls.; Colorado, 3,000 bbls.; Illinois, 11,700 bbls.; Indiana, 2,100 bbls.; Kansas, 123,900 bbls.; Kentucky, 11,700 bbls.; Louisiana, 94,000 bbls.; Michigan, 27,900 bbls.; Montana, 8,000 bbls.; New Mexico, 45,900 bbls.; New York, 10,000 bbls.; Ohio, 11,500 bbls.; Oklahoma, 451,600 bbls.; Pennsylvania, 35,000 bbls.; Texas, 941,300 bbls.; West Virginia, 11,000 bbls. and Wyoming, 32,600 bbls.



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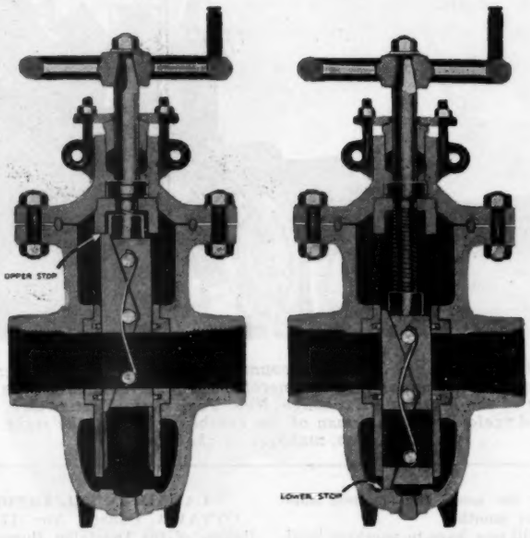
THROUGH CONDUIT LUBRICATED GATE
VALVE

has more than fulfilled the promise we made for it

It opens and closes easily under highest pressures because the body is filled with compression grease (3" valve holds 8 lbs., providing ample lubrication for long period of service). Grease is held in body by sealing rings. Internal corrosion is not possible.

Parallel gates expand uniformly under all conditions, and double wedge construction assures positive seal-off on both seats in either open or closed position.

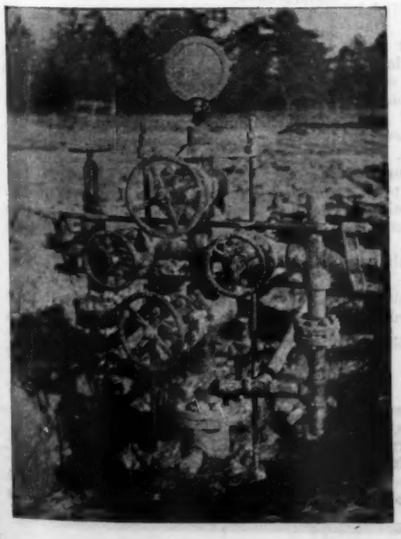


OPENED CLOSED

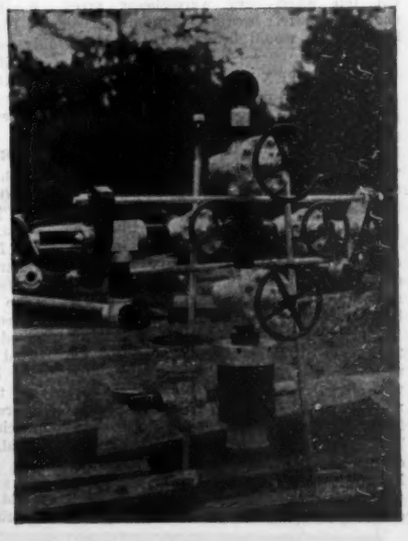
This outstanding achievement in valve design incorporates those improvements and refinements lacking in conventional type gate valves. It overcomes the greatest valve trouble, by preventing the collection of sediment, scale, etc., so common to ordinary valves.

Patented bronze combination wipe-and-seal rings, in constant contact with the gate, keep gate and seats free from deposits, cleaning at each operation of the valve. Bronze seats, extra large, are quickly renewable.

All W-K-M Valve equipped high pressure South Texas well.



All W-K-M Valve equipped high pressure Gulf Coast well.



Note the through-conduit smooth flow-way providing full, unobstructed opening, with both seats entirely protected.

Parallel expanding gate effects a positive seal on both sides, regardless of the pressure against it.

Whether open or closed, seats and seat rings are sealed off, pressure tight, against leakage, abrasion or wear.

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NEWS FOR PETROLEUM REFINERS

Proposed Legislation to Hit Eastern Motorists

Higher taxes and diversion of a larger share of the money he pays for highways are in store for the motorist, if legislative measures now being discussed in seven Atlantic Coast states are passed this winter, a post-election survey shows. In only one state, Maine, is he likely to be benefited by changes in the law.

In five states the diversion of highway funds to other purposes is involved, according to information obtained by the American Petroleum Industries Committee, New York. In four other states increased taxation will be proposed, while in one the question of selling retail gasoline on a temperature basis will come up.

Maine voters have successfully circulated a petition, which would amend the state constitution to prohibit diversion of highway funds. According to the Maine law, if this amendment is not adopted by the legislature this winter, the question will come before the voters at the next general election.

In New Jersey threats have been made that further diversions of highway funds would be made at the next session of the legislature and that the gasoline tax will be increased another cent. Reports from Albany indicate that the New York legislature will consider a bill this winter to continue the 1-cent emergency gas tax, the revenue from which is diverted to relief. A state sales tax and a chain store tax are also being discussed.

A suggestion that gas tax revenues be diverted to general purposes has been heard in both Virginia and North Carolina. In reply to Federal Relief Administrator Harry Hopkins, who recently implied that Virginia should divert highway money to finance a large share of relief, Governor George Peery pointed out that the State's highway payroll was already practically a relief payroll, and said that, as a result, the State was doing as much as or more than other states for the relief of their needy.

In addition to the movement in North Carolina to divert part of the State's gasoline tax money, the Division of Weights and Measures has proposed that gasoline be sold to consumers on a temperature basis. This plan has met much opposition, however, since it would complicate the selling of gasoline and would put motorists at the mercy of unscrupulous dealers. Consumers of gasoline could not tell when they were being given short measure, because standard gasoline gauges would become worthless.

EAST TEXAS REFINERIES

FORT WORTH, Tex., Nov. 19.—Runs to local plants was around 45,000 bbls. per day this week, part of which might have come from storage, but some of which was no doubt "hot oil." Only 68 tank cars of crude were shipped from the field daily this week. Refined products shipments ran in the neighborhood of 1,200 bbls., a further decrease in shipments. Interstate shipments are all tendered and have been cut to a minimum and hereafter intrastate shipments will be curtailed in about the same ratio.

Overproduction is now estimated around 25,000 to 30,000 bbls. per day, and the next 10 days' reports should show a further sharp decrease, present production running around 100,000 bbls. per day below what it was prior to the Federal Tender Board. There were 62 plants shut down in the field before this decision was handed down against them in the State versus the Blue Diamond Oil Co. and others' suit. Only 22 plants were operating during the week, the smallest number in many months.

Plants will now have to purchase legally produced crude at the posted price of $1 if they desire to continue operations in the field, as they are connected to only 22,000 bbls. and their daily capacity is seven or eight times that.

Oil Shipping Problems Are Discussed at the First Annual Marine Exhibition

NEW YORK, Nov. 19.—Occupying three floors of the Marine Exchange Building, the first annual Marine Exhibition opened here this week.

F. W. Lovejoy, sales executive of the Socony-Vacuum Oil Co., Inc., was the principal speaker on Tuesday which was Petroleum Day at the exhibition. Mr. Lovejoy, discussing shipping conditions in New York in which the oil industry is an important factor, stressed the necessity of better merchandising methods.

"Tell the American public your story—dramatize it in a way to appeal to the imagination," Mr. Lovejoy said. "The facilities are here to greatly expand activity. In the New York area there is 770 miles of waterfront; a greater distance of mileage than from New York to Bermuda."

Members of the committee which had charge of the program for Petroleum Day were: Harry S. Norris, Socony-Vacuum Oil Co., Inc.; J. E. Ackland, Socony-Vacuum Oil Co., Inc.; Herbert W. Schilling, Texas Co.; Ed I. Decker, Tide Water Oil Co.; Henry Wesson, Shell Eastern Petroleum Products, Inc. All the companies named had booths at the exhibition which extends from November 12 to 24.

Frank Lovejoy, of the Socony-Vacuum Oil Co., Inc. is shown urging shipping interests to adopt modern merchandising principles at the Marine Exhibit in the Maritime Exchange, New York City. Next to Mr. Lovejoy stands Angelo Risso, chairman of the exhibition and at the right is C. H. Callaghan, manager of the exchange

PURE TO TAKE EAST TEXAS OIL

The Pure Oil Co. will start taking 6,000 bbls. of East Texas crude oil daily for its Smiths Bluff refinery on the coast. The crude will be delivered by the Humble Oil & Refining Co. to the Liberty Pipe Line Co.'s station at Kilgore to be piped to the Pure-Van Pipe Line Co.'s system at Rusk station in Cherokee County, from whence it will be piped to the coast. The Pure Oil Co. decided to take this amount after production in the Van Field was cut back below the company's refinery needs. Heretofore the company has always declined purchasing oil from the East Texas Field, desiring to take crude from its own field in Van Zandt County. Reason given was that the East Texas crude could not be readily processed in the Smiths Bluff plant.

CANADIAN OIL IMPORTS

OTTAWA, Canada, Nov. 17.—Official figures of the Dominion Bureau of Statistics show that petroleum, asphalt and their products imported into Canada in August were valued at $4,860,330 compared with a July import valuation of $4,146,837. The chief sources of the August imports, with percentages, were: United States, 81.0; Colombia, 18.5.

Imports of crude petroleum in August totaled 129,613,183 gallons, an increase of 10.9 per cent over the July total of 116,883,335 gallons. The August imports included 98,177,800 gallons from the United States and 31,435,383 gallons from Colombia.

Exports of petroleum and its products from Canada in August were valued at $55,772, or 31.3 per cent below the July valuation of $81,175.

START COLORADO PLANT

The M. & M. oil refinery recently moved from Orchard, Colo., to a location along the highway west of Fort Morgan, Colo., is again operating. The refinery is owned by Markley Brothers and is operating on crude oil from the Bolton Creek Field in Wyoming.

Plan Three Solvent Units for Gulf Coast Refineries

HOUSTON, Tex., Nov. 20.—Three large refiners along the Gulf Coast have prepared preliminary plans for the installing of equipment to refine a portion of their motor oil production by solvent extraction. If these plans are approved, units will be installed at the Gulf Refining Co.'s plant at Port Arthur, at the Sinclair Refining Co.'s plant near Houston, and also at the Texas Co.'s plant at Port Arthur. Tentative plans call for units of more than average capacity and each will produce in excess of 1,000 bbls. of finished oils daily.

The Magnolia Petroleum Co. has been operating its new Dou-Sol plant Beaumont for several months and has reached the point where the procedure has become a matter of routine. Recently the company joined with other refining and marketing companies of the Socony-Vacuum group to push the sale of solvent refined oils. This program has prompted a new general interest in solvent refined oils and this program together with those of the Standard Oil Co. (Indiana) in the Middle West and the Union Oil Co. and others along the West Coast is fast bringing solvent refining to the foreground.

The effect of the change to solvent refining is felt in the foreign markets as well. Foreign lubricating oil buyers are often now stipulating that the quotations sought be made on solvent refined oils.

The Standard Oil Co. of Louisiana is about ready to operate its new 2,000-bbl. phenol plant at Baton Rouge, La., and the Humble Oil & Refining Co. has prepared rather definite plans for the early completion of a similar unit.

Stambaugh Addresses A.P.I. on Sales Administration

In a paper before the American Petroleum Institute at Dallas, A. A. Stambaugh, vice president of the Standard Oil Co. of Ohio, presented a picture of the problems and workings of the sales administration of an oil company. Mr. Stambaugh stressed the importance of the expense budge as a guide to both sales programs and anticipated expenditures. Declaring that the principal reasons for failure of this valuable tool, was the fact that it was often subordinated and complex, he outlined the necessary features which an expense budget should have.

The importance of simplicity in the sales organization was also stressed. Decentralization should be employed in management and operating functions to a sufficient extent to prevent overlapping of duties and competition between the various units, but where accounting, invoicing and the tabulation and preparation of reports are concerned the advantages of centralization strongly recommended its use. Other points in Mr. Stambaugh's address included expense analysis, operating statements, and various operating problems.

DOCKETS CROWDED

The crowded condition of the East Texas district courts has led members of the Attorney General's staff to prepare applications for receiverships for properties of proration violators, for filing in the Travis County District Court

LLOYD REFINERY OPERATIONS

PORT CREDIT, Ontario, Nov. 17.—Lloyd Refineries, Ltd., recently completed a small refining plant here and is now operating, supplying gasoline and fuel oil to independent dealers.

MAKE YOUR CHOICE

in any of 4 METALS TO MEET A "STEP UP" IN . . .

Step up pressure or temperature and you "step up" corrosive and erosive action on metals. Or the refinery product handled itself may be excessively corrosive. It is necessary to have always available the *correct* product in the metal best suited for the job. Crane Co. therefore offers the products below in *any one of the four metals listed* so that you may select your metal on the basis of (1) pressure and temperature and (2) corrosive action. At your request, Crane engineers will advise you on specific requirements out of knowledge gained in years of refinery work.

- **PRESSURE**
- **TEMPERATURE**

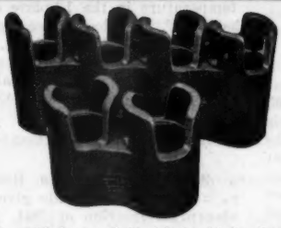
and resistance to

- **CORROSION**

CARBON CAST STEEL • CARBON MOLYBDENUM CAST STEEL

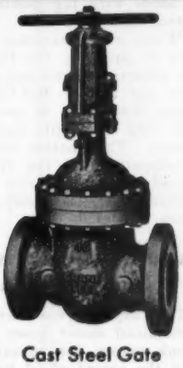
NICKEL CHROME ALLOY CAST STEEL • CHROME MOLYBDENUM CAST STEEL

Screwed Back Outlet Cast Steel Return Bend

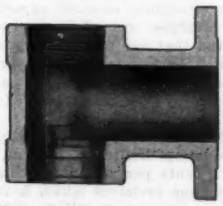


Two-Hole and Multiple Hole Box Header, Back Outlet

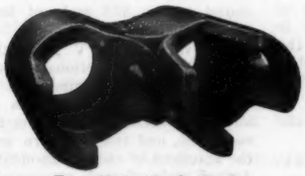
Flanged End Still Return Bend for High Pressure and High Temperature



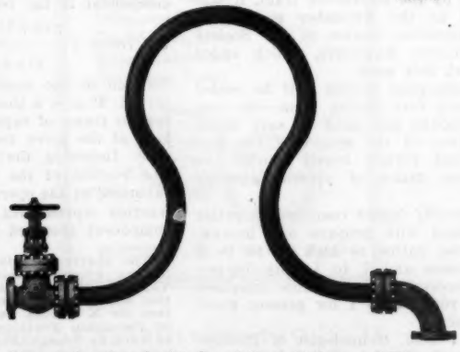
Cast Steel Gate Valve



Cast Steel Corner Fittings, Screwed Back Outlet



Two-Hole Back Outlet Box Header



Expansion Bend with Steel Gate Valve and Elbow

Back Outlet Corner Fittings

Cast Steel Tee

Cast Steel Return Bend

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NATURAL GASOLINE MANUFACTURE

Added Support Given to Fuel Research Program

Natural gasoline manufacturers, refiners and jobbers of motor fuel had an opportunity to hear Dr. G. G. Brown of the University of Michigan discuss the research program being sponsored by the Natural Gasoline Association of America while they attended the A.P.I. convention in Dallas in the past week. The meeting was held Wednesday morning and was attended by about 70 representatives. A general discussion of the details of the program followed Doctor Brown's statement and along with creating new interest and satisfying certain questions that were in the minds of those present, the support of a sufficient number was given the project to assure a complete investigation. The program itself was disclosed in the association's announcement made a week ago and was published in The Oil and Gas Journal on page 13 of the November 8 issue.

At the same meeting Dr. E. R. Lederer, vice president of the Texas Pacific Coal and Oil Co., chairman of the North Texas Allocating Committee and familiar with the general program of allocating motor fuel production, offered suggestions on how the natural gasoline industry may be made to play a more prominent part in the stabilizing program. His talk was reassuring. Genuine progress can be traced when a comparison is made with the position natural held a year ago.

While some discussion was held in regard to applying the California method for collecting, sampling and testing natural gas to the Mid-Continent, no attempt was made to correlate the opinions into a definite approval or disapproval. This matter will be viewed by a committee of the Natural Gasoline Association of America on Wednesday, November 21, the meeting to be held in Tulsa.

Future Automotive Use of Liquefied Gas Predicted

The day is not far distant when streamlined motor buses and trucks will streak across the country in less time than the record of 56 hours recently established by the streamline train, it was predicted at the November meeting of the metropolitan section of the Society of Automotive Engineers, which ended in Newark this week.

The high-speed motors will be cooled by the very fuel driving them—the new butane-propane gas, said to save about 20 per cent in the weight of the fuel carried and permit nearly double the compression ratios of present gasoline motors.

Considerably higher compression ratios can be used with propane and butane. Compression ratios as high as 10 to 1 with propane and 7 to 1 with butane can be successfully used. This compares with the rough 5 to 1 for present gasoline engines.

W. Z. Friend, technologist of Phillips Petroleum Co., explained that butane and propane are liquefied petroleum gases hitherto produced as almost waste by-products of natural gasoline and refined petroleum.

"As liquefied gases they require more care in handling than gasoline and will therefore be confined for some time to commercial use," he said. "Their cost is about the same as gasoline."

When air-conditioned automobiles are introduced, these new gas fuels will both cool and propel them, he added. Only slight changes are required to prepare a gasoline motor to use butane or propane.

Computation of the Oil-Gas Ratio in Natural Gasoline Absorption Problem

By GEORGE WEBER

The factors involving the absorption process as used in the natural gasoline industry, lend themselves readily to mathematical calculation. In handling calculations of this sort, the mol basis is used until the required values are found and then the results are converted into terms more commonly found in practical operation. There are four distinct fluids handled in an absorption unit; the rich gas entering the tower at the base, the lean oil entering at the top, the lean or residue gas vented from the top of the tower, and the rich oil leaving the base of the absorber. In processing a gas of known content, with an oil of known molecular weight, a complete set of data may be computed with the aid of several tools evolved in the form of charts.[1] Variables involved are the pressure and temperature maintained in the absorber, the number of plates in the column, and the ratio of gas and oil flowing countercurrent through the absorber. The latter condition is defined in terms of mols of lean oil per mol of rich gas for ease of computation and is designated by the ratio L/V.

In the accompanying example, the temperature, pressure and number of plates in the column are fixed. The gas has a known content and the oil used has a specific gravity of .80 and a molecular weight of 170. It is desired to absorb 95 per cent of the n-pentane in the gas. This assumption furnishes the first step in the calculation of oil-gas ratio, and content of lean gas and absorbed natural gasoline. With the pressure and temperature conditions maintained at a constant value, the factor determining the quality of gasoline is the L/V ratio. This is the principal operating figure desired, the remaining results being of secondary importance.

Several new symbols are made use of in calculations of this sort. $y(n+1)$ is the mol. fraction of a component in the rich gas; y_1 is the mol. fraction of that component in the residue gas. Therefore the fraction $\frac{y(n+1)-Y_1}{y(n+1)}$ represents the fraction of the component which is absorbed. This is a theoretical value, ignoring the factor of vaporization of the fraction at the given temperature and pressure. Including the value y_e, which is the fraction of the component normally vaporized at the operating conditions, the fraction representing the amount of the component absorbed becomes:

$$\frac{y(n+1)-y_1}{y(n+1)-y_e}$$

This fraction is used, together with the number of bubble plates in the absorber in finding the absorption factor A. This factor, which equals L/VK, is found from a chart upon which these three relations are plotted. Having found this value A, only K is needed to find the oil-gas ratio. From the Vapor Equilibrium charts, K or y/x is found for the component at the temperature and pressure conditions maintained. To this value a correction factor is applied, compensating for the deviation of the component from ideal solution conditions.

The resulting value for L/V is then used to solve for the values of the other components. As the ratio is theoretically constant throughout the column, it can be used together with the K_e values to obtain the fractions of the remaining components absorbed.

In the example shown in the table below, the gauge pressure is to be held at 34 pounds per square inch and the temperature in the 12-plate column is to be 90° F. The barometer reading at the location is 26.68 inch of Hg. Converting the gauge and atmospheric pressures to mm. of Hg. and adding, the absolute pressure is computed to be 2,432 mm. The assumed value of the fraction $\frac{y(n+1)-y_1}{y(n+1)}$ is .95. Substituting in Raoult's Law, $y_e = px_e$ or .0009. This gives an actual absorption fraction of .964. The absorption factor A is found from the chart to be 1.13. Next the value of K for n-pentane is determined and the correction factor of 1.1 results in a K_e of .33. By solving directly, the value of L/V is found to be .373 mols of lean oil per mol of rich gas.

The value of L/V gives the key to solution of the fractions absorbed of all of the remaining components. After the values of K are found from the charts and corrected, the absorption factors are computed, and these in turn used to find the fractions of each component absorbed. Actual mols of each compound absorbed are found by multiplying the fraction absorbed by the fraction originally in the rich gas, on the basis of 100 mols. of the rich gas.

This completes the computations involving the absorption operation. It is now necessary to convert these results to terms more practicable than mols. The oil has a molecular weight of 170 and a specific gravity of .80. There are 379 cubic feet of any gas at normal pressure and temperature in each pound mol of that gas. Therefore, multiplying the fac-

(Continued on Page 60)

[1]The charts used in computing the data in the given example include those of Vaporization Equilibrium Constants, Absorption and Stripping Factors, Correction Factors for K Values, and Molecular Weights of Petroleum Fractions. All are the result of work by George Granger Brown and Mott Souders of Ann Arbor, Mich.

Phillips Announces New All Natural Gasoline Fuel

BARTLESVILLE, Okla., Nov. 19.—A new gasoline which is not refined from crude oil at all, as are other gasolines, but which is made entirely from natural gas has been placed on the market in a few major Mid-West cities by the Phillips Petroleum Co. Similar to the aviation fuel which Phillips has been supplying the army air corps for several years, the new product is called Phillips 77 Aviation.

"Scientists have long known that gasoline could be made from the same type of gas which is used for cooking and for heating homes, but it took 14 years of experiments by the Phillips Petroleum Co. to make this gasoline suitable for use in automobile motors," said R. C. Alden, head of the Phillips research department, in explaining the new fuel.

"When produced under the usual methods of manufacture, the gasoline made from wild natural gas is itself wild, and is used by oil men for blending with the heavier and more sluggish gasolines which are refined from crude oil and which, so far, have constituted the major part of the nation's gasoline production," Alden said.

Phillips research men have, however, developed methods for removing the wild parts of natural gas. The result is Phillips "77." The new gasoline is not even made in a refinery, but is produced in specially constructed plants which, by a series of ingenious heating and cooling operations, extract pure gasoline from the gas.

"The advantages of Phillips' new gasoline are its easy starting and quick warm-up qualities which every motorist knows are so desirable at this season of the year," Mr. Alden said. "In making automobile fuel out of the natural gas, our problem was actually one of decreasing the fuel's volatility, or ability to vaporize, rather than trying, by expensive and wasteful refining processes, to increase the gasoline's ease of vaporization. The advantages are obvious, and we have found that our new methods make it possible for the motorist to procure gasoline of a volatility which cannot be attained by fuel manufactured from crude oil alone."

Since the supply of this new type of gasoline is limited at present, a premium of 2 cents per gallon is being charged—the same premium which is tacked on to other premium gasolines throughout the country. It is predicted that this winter's sales of Phillips "77" will determine whether the Phillips Petroleum Co. will expand the market for gasoline made from natural gas. The new fuel has the usual antiknock rating of premium gasolines—76 octane.

At present Phillips "77" is being offered for sale only in major cities in Minnesota, Iowa, Nebraska, Wisconsin, Illinois and Michigan, where the conditions of extremely cold weather prevail, which make such a fuel desirable.

TABLE OUTLINING CALCULATIONS OF NATURAL GASOLINE ABSORPTION

(Basis: 100 mols of rich gas)

Components	Rich gas Content (mols)	K	Correction factor	K_e	(A) L/V K_e	$\frac{y(n+1)-y_1}{y(n+1)-y_e}$	$\frac{y(n+1)-y_1}{y(n+1)}$	Mol. pct. absorbed	Mols absorbed	Mols residue gas
CH_4	75	42.0	2.0	84.0	.004	.004	.004	.4	.3	74.7
C_2H_6	10	8.10	1.5	12.2	.031	.031	.031	3.1	.31	9.69
C_3H_8	4	3.05	1.2	3.65	.102	.102	.101	10.1	.40	3.60
iC_4H_{10}	1	1.35	1.1	1.49	.244	.244	.240	24.0	.24	.76
nC_4H_{10}	3	1.00	1.1	1.10	.33	.33	.326	32.6	.98	2.02
iC_5H_{12}	1	.40	1.1	.44	.825	.79	.780	78.0	.78	.22
nC_5H_{12}	6	.30	1.1	.33	1.13	.964	.956	95.6	5.7	.30
Total	100	.....	....	.....	.....	.....	.....	.....	8.71	91.29

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Oklahoma City Wells Respond to New Process for Removing Settlings

By L. G. E. BIGNELL
Petroleum Engineering Editor

It is quite probable that most people have at one time or another pushed the nozzle of a garden hose against the earth and noted the flow of water flushed out the mud at a rapid rate and the hose could be pushed into the hole thus made for some distance. The depth of the hole is dependent upon the water pressure and the hardness of the ground.

This very simple method of removing earth has been applied to many mechanical operations on a much larger scale. Hills have been washed away to recover free gold existing in the gravel of which the hill was composed, and in other instances earth has been washed away to level the ground for building purposes. This is known as hydraulic mining. Piling is sunk through quicksand by the jetting of a stream of water through the open end of a pipe in the center of the cast concrete pile. As long as the water flows out of the end of the pipe the pile will sink in the loose sand but as soon as the water is shut off the sand quickly packs around the pile and it is held firmly in place.

The carrying power of water varies with its velocity and the specific gravity of the material moved. The sediments in which oil fields are found were mostly accumulated by water movements. These formations consist of hardened mud or consolidated sands or limestones and if they were laid down where they are now penetrated by the drill, even at great depths, it is possible to wash them out of place with water. If limes they can be dissolved with hydrochloric acid now extensively used to increase production in limestone formations.

This is preliminary to describing a method now being used extensively in the Oklahoma City Field to remove sediment from the bottom of wells from 6,100 to 6,500 feet deep.

The principal producing zones are known as the lower Simpson, or Simpson below Wilcox, and the Wilcox sand zone. The oil and gas from the producing formations in each zone comes from sand bodies interspaced with layers of shales (dried muds) and limestone stratas. These sand bodies are relatively soft, especially the Wilcox sand, and under the methods of production imposed by proration rules this sand has been washed out of the formation and part of it carried to the surface with the oil and gas and the balance accumulated in the open hole at the bottom of the well.

Clean-out Necessary

Experience in producing oil before proration curtailed the rate of production indicated the necessity of flowing a well wide open for a period of time to remove all cuttings and settlings from the bottom of the hole. When the oil fields operated strictly upon the competitive basis of each operator securing the oil that would flow through his wells, it was the usual practice to flow the wells to their full natural capacity until lease tanks were full, or if the pipe line company could and would handle the oil away from the lease, to flow the wells without restriction as long as they would continue to flow naturally.

With the coming of proration this practice was eliminated. The question of whether this curbing of production rate was best for the industry is not to be considered here, merely its general effect upon wells.

In the Seminole Field the gas lift was used extensively to hasten rate of production. The flood of oil brought about the application of the principles of proration. When the Oklahoma City Field was first opened the wells were drilled into the Arbuckle lime and many of them were produced by open flow, at least as long as the pipe line companies would remove the oil from the lease tanks.

The next zone drilled was the lower Simpson and some of the first wells finished in this zone were also produced wide open for a time. Proration was first applied to wells in the Oklahoma City Field. Prior to this time an attempt was made to limit well spacing to one well to 40 acres, then one well to 10 acres, but as no agreement could be reached the well spacing was governed solely by the operator's opinion of what best served his interests. Proration is based upon the potential of the wells. Under such allocation of the oil in the pool the incentive is to drill as many wells as practicable upon each tract of land and in many portions of the Wilcox zone one well has been drilled upon less than two acres of ground.

The field has its allowable fixed by the Corporation Commission of Oklahoma through the proration umpire and it is a well-known fact that many of the operators have secured additional oil by special permits and caused unequal withdrawal and a variation of production rates in wells in this field.

All wells were produced at full capacity for only a portion of the time regardless of the owner's desire to run all the oil his well would produce. If the well in the Wilcox zone did produce at its full capacity for a time the high rate of flow of the gas and oil through the soft sand formation carried into the bottom of the hole and up into the flow string great quantities of sand.

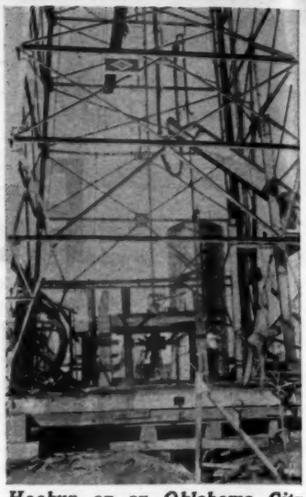
It is reported that some Wilcox wells actually flowed 20 per cent sand by volume with the oil and gas. One well is estimated to have delivered its production at the rate of 450 miles per hour out of the top of the 7-inch casing while flowing at the rate of 70,000 bbls. per day with 150,000,000 feet of gas accompanying the oil. The quantity of sand accompanying this oil and gas is not reported but some wells have produced in excess of 2,500 tons under somewhat similar conditions during one flow period.

When the flow of such a well is turned off there is a vast quantity of sand in suspense in the fluid in the flow string. This settles back to the bottom of the well. In one instance it is recorded that sand settlings were found to fill the casing 2,000 feet up from the bottom of the hole.

While the instances cited may be exceptions it is definitely known that the wells in Oklahoma City Field have for a long time needed a thorough cleaning out to permit the formations to deliver their oil into the bottom of the hole in a more uniform manner. With the penetration into the pay section varying from 50 or 60 feet to more than 200 feet below the bottom of the flow string it has been found that only from 10 to 20 feet of the upper part of this producing formation was free of settlings. Under this condition it must have been necessary for the gas and oil to escape into the casing through this limited upper open section, and under such a condition the wells made their allowable, but the velocity of the gas and oil escaping through this small open space below the casing must have been higher than it would have been if the same quantity of gas and oil had been produced from the full open hole.

Results Obtained by Process Applied to Wilcox Zone Wells

Original total depth, feet	Wilcox sand top	Wilcox sand base	Top of cavings	Cleaned out to	Feet cleaned out	Production Before cleanout	Production After cleanout	Increase bbls. per day	Hours cleaning out
6,375	6,272	6,272	6,291	6,355	64	....	1,320	....	48
6,526	6,265	6,350	6,104	6,430	316	265	1,100	835	52
6,430	6,329	6,425	6,328	6,429	101	5,400	5,600	3,200	15
6,476	6,311	6,474	6,442	6,476	34	148	1,656	1,508	9
6,431	6,315	6,417	6,328	6,430	102	1,800	2,400	600	24
6,425	6,323	6,423	6,338	6,425	82	4,500	7,200	2,700	26
6,485	6,325	6,482	6,328	6,470	142	1,800	2,300	500	36
6,505	6,308	6,505	6,329	6,505	176	3,520	3,960	1,440	28
6,555	6,285	6,423	6,280	6,440	60	960	1,390	430	32
6,482	6,360	6,480	6,392	6,450	73	2,500	2,620	120	26
6,476	6,340	6,476	6,429	6,460	31	2,400	3,000	600	21
6,534	6,431	6,534	6,487	6,534	47	936	4,536	3,600	9
6,397	6,258	6,379	6,294	6,397	103	1,388	1,272	—113	17
6,530	6,309	6,529	6,280	6,479	199	1,920	2,640	720	53
6,547	6,318	6,417	6,345	6,436	91	1,800	2,400	600	20
6,509	6,310	6,509	6,348	6,504	156	1,800	2,400	600	44
6,446	6,277	6,441	6,365	6,406	41	2,280	2,976	696	17
6,455	6,328	6,455	6,364	6,455	91	2,040	2,520	480	49
6,410	6,341	6,406	6,250	6,410	160	1,008	1,008	....	64
6,423	6,329	6,423	6,360	6,423	178	2,040	2,450	410	95
6,491	6,312	6,491	6,340	6,476	136	2,496	3,000	504	19
6,487	6,350	6,478	6,370	6,480	110	2,040	2,400	360	80
6,403	6,213	6,282	6,261	6,400	139	1,560	1,513	—48	16
6,488	6,318	6,430	6,355	6,435	80	5,000	6,000	1,000	38
6,466	6,288	6,466	6,359	6,460	101	3,264	3,720	456	34
6,383	6,366	6,381	6,278	6,383	105	6,240	6,450	210	42
6,499	6,332	6,499	6,363	6,499	136	6,600	7,405	805	46
6,488	6,320	6,470	6,405	6,485	80	1,680	2,040	360	18
6,480	6,287	6,475	6,375	6,380	5	2,352	6,720	4,368	12
6,582	6,470	6,573	6,509	6,582	74	7,800	8,400	600	20
6,570	6,455	6,569	6,492	6,553	59	2,760	3,052	302	31
6,511	6,346	6,503	6,426	6,511	85	1,420	1,680	260	29
6,457	6,277	6,457	6,362	6,455	93	2,592	2,504	912	26
6,501	6,325	6,494	6,404	6,501	97	1,620	2,040	420	22
6,424	6,355	6,340	....	....	....	250	792	542	39
6,470	6,235	6,470	6,343	6,454	111	288	360	72	139
6,470	6,284	6,467	6,290	6,470	180	2,280	2,688	408	18
6,456	6,365	6,425	6,408	6,456	48	1,152	1,440	288	30
6,369	6,285	6,369	6,264	6,369	105	750	865	115	87
6,502	6,421	6,502	6,385	6,502	117	672	1,800	1,128	98
6,398	6,248	6,380	....	....	....	4,416	4,080	336	51
6,500	6,304	6,500	6,200	6,448	248	3,520	6,240	2,720	37
6,570	6,241	6,286	6,267	6,400	133	400	800	400	89
6,538	6,450	6,538	6,460	6,538	78	1,080	1,320	240	41
6,410	6,262	6,408	6,303	6,339	36	....	1,043	....	17



Hookup on an Oklahoma City Field well during cleaning out, using the Arco process

High Gas-Oil Ratios

Oklahoma City wells have been produced with excessive gas-oil ratios in most instances. It has been stated in a report by H. H. Hill and E. L. Rawlins of the U. S. Bureau of Mines that gas-oil ratios varied from 300 feet to 500,000 feet of gas per barrel of oil. They placed the very conservative estimate of from 5,000 to 8,000 feet per barrel. This field is reported to have produced in excess of 235,000,000 bbls. of oil. This would indicate that the gas accompanying this oil was from 1,175,000,000,000 to 1,880,000,000,000 cubic feet.

The commission issued orders restricting the gas-oil ratios, also governing the rate of production of wells making salt water. But the same general principle of permitting the wells to produce only part time has prevailed throughout the life of the field since proration was imposed upon its wells.

As the well's potential declines many expedients are tried to bring it back. Wells have been shot with nitroglycerin and some more than once. Various methods of removing settlings from the bottom of the hole have been resorted to from time to time and the results have been about as varied as the methods.

With the formation pressure within the Wilcox sand now below 500 pounds and in many areas lower than 300 pounds per square inch and with salt water moving into this sand at a relatively high rate the operators are again resorting to cleaning out their wells. In the lower Simpson zone the salt water has encroached into practically all wells in the northern portion of this formation. It is stated that bottom hole pressures there are as high as 1,000 pounds per square inch in some wells.

These bottom hole pressures indicate the approximate fluid levels in the wells. Salt water will exert a pressure of about one-half pound per square inch for each foot of height of the fluid column. If the bottom hole pressure in a well is 400 pounds it can balance a column of salt water approximately 200 feet in height.

Blowing Out Settlings

It is quite obvious that it is not practicable to attempt to remove the settlings in the bottom of these 6,000-foot wells by rotary methods. It has also been found that cable tool methods are not well suited to these conditions. Bailing with several forms of special bailers has given

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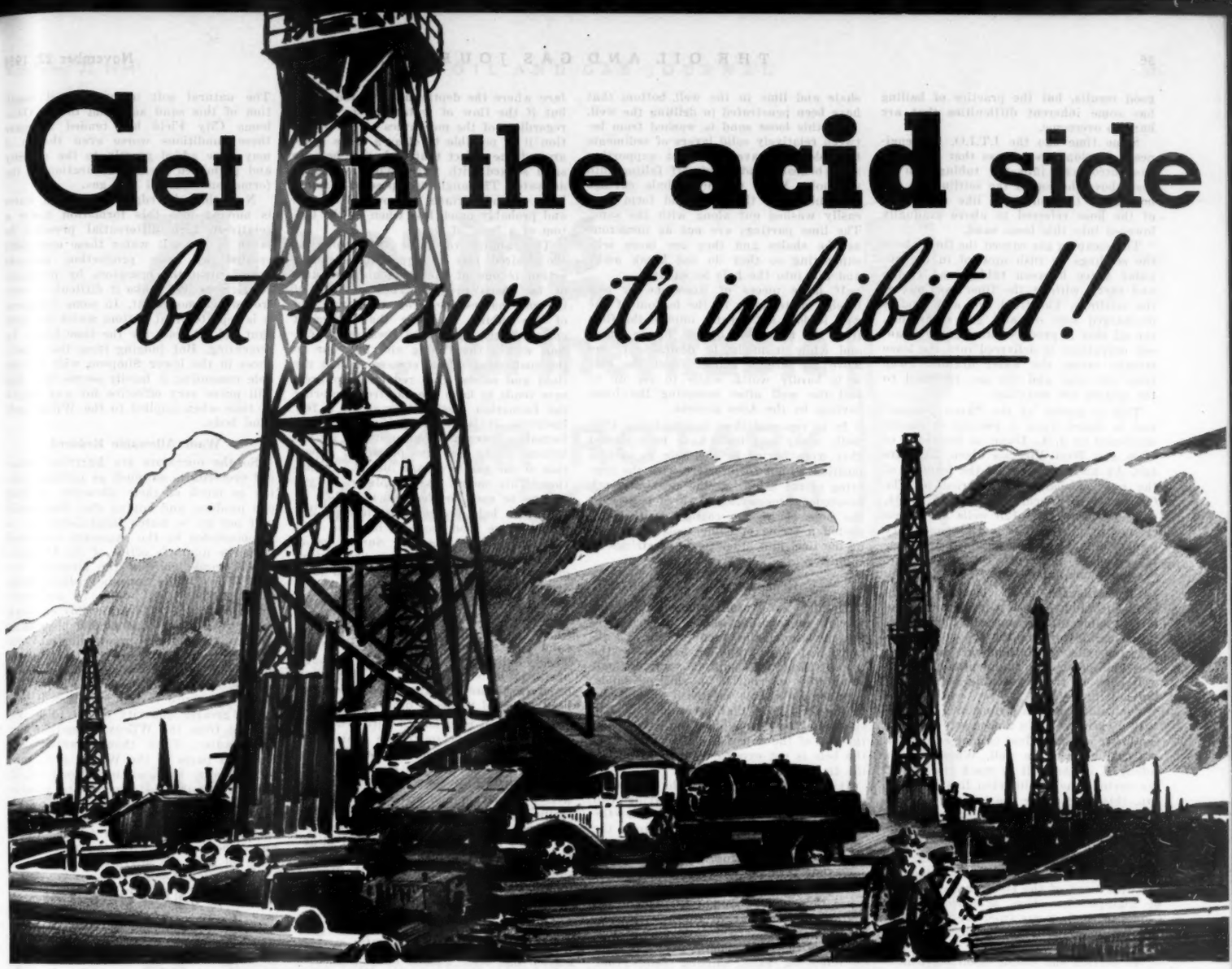

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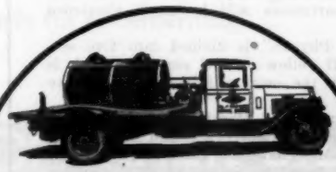

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good results, but the practice of bailing has some inherent difficulties that are hard to overcome.

Some time ago the I.T.I.O. Co. engineers developed a process that employed gas introduced into the tubing run to just above the top of the settlings in the bottom of the hole, and like the nozzle of the hose referred to above gradually lowered into this loose sand.

The escaping gas caused the fluid above the settlings to rush upward in the annular space between tubing and casing and carry with it the finer portions of the settlings. The fluid, gas and sand is discharged into oil and gas separators, the oil that is produced during the cleanout operations is delivered into the lease storage tanks, the water drained away from the trap and the gas returned to the system for recycling.

This is known as the "Arco process" and is based upon a process originally developed by I. L. Dunn in the fields of Ohio and West Virginia about 25 years ago. An announcement of the forming of the new company was carried in The Oil and Gas Journal of May 17, 1934, page 48. More than 125 wells have been cleaned by this method in Oklahoma City to date and the results obtained by cleaning some of them are recorded in the accompanying tabulation.

The wells that need cleaning usually have such low bottom hole pressures as to be unable to flow natural. It is therefore possible to open the top of the casing and run a Halliburton measuring line and determine the depth from the well head to the top of the settlings in the hole.

The tubing is then strung into the hole with a check valve in a shoe screwed into the lower end and fluid cannot enter into the tubing from the well. When enough tubing is in the well to reach the top of the cavings the Halliburton line is again run, this time inside the tubing. By this method the inside of the casing is checked for bridges, also the condition of the open hole below the casing.

With the proper length of tubing in the well, a check valve is inserted in the upper end of the string and a length of high-pressure hose attached to the swivel to conduct gas from the gas main. The tubing string is handled by the usual sand lines run over sheaves at the top of the derrick and wound upon the winch of a portable outfit. An indicator shows the weight of the tubing suspended in the hole. If lowered too rapidly this indicator records less weight because the lower end of the tubing rests upon the cavings, relieving, to some extent, the pull on the lines in the derrick.

To regulate the volume and pressure of the gas admitted to the tubing valves and orifice meters are provided. The pressure of the gas used will range from 450 to 600 pounds per square inch. If the fluid stands relatively high in the hole it is customary to lower the tubing into the upper portion only a sufficient depth to give proper submergence to kick off the well and start it flowing, then lower the tubing until the end rests just above the top of the cavings.

Junk in Hole

As the gas escapes from a specially designed nozzle at the bottom of the tubing it impinges against the solid packed sand and causes the fluid to flow away from it and at the same time carry such particles of sand and settlings as may be loosened by the jet of gas. The fluid and its load of cavings travels upward by the gas lift created through the gas flow and reaches the surface, discharging into the oil and gas separator already set at each well.

The Wilcox sand is fine and not hard to wash out of the hole. When the hole contains fluid the sand tends to slough to the bottom of the hole as rapidly as part of the cavings are removed. This sloughing action seems to occur in both the loose sand body and the Wilcox sand in place.

It has also been noted that large quantities of sand has apparently been loosened by the scouring action and flowed from over and beneath the partings of shale and lime in the well bottom that have been penetrated in drilling the well.

As this loose sand is washed from between relatively solid layers of sediments they do not have sufficient supporting sand beneath and break off falling into the hole. Much of these shale cavings will mix with the fluid and form mud easily washed out along with the sand. The lime partings are not as numerous as the shales and they are more self-supporting so they do not break away and fall into the hole as easily.

If large pieces of limestone or any foreign material is in the bottom of the well it does not greatly impede the flow from the formation of gas, oil or water and while it might be desirable to remove all foreign matter from the hole it is hardly worth while to rig up to bail the well after removing the loose cavings by the Arco process.

It is reported that in Oklahoma City wells many lost tools have been passed that were buried in the hole in such a position as not to interfere with the lowering of the tubing as the cleanout work proceeded. One well had three bailers in the hole below the casing, another reported a string of cable tools with part of the line, and other parts of strings of tubing.

Removing Lost Tools

Having successfully passed by such foreign objects has opened a new field for the use of the Arco process. To remove lost tools, pipe or bailers by the usual fishing methods is very difficult when they are buried in shifting sands. As fast as a hole is bailed in the top of the sand body that surrounds the fish the loose sand runs into the cavity and the end of the object to be removed from the hole is not exposed enough to permit the fishing tool to engage it.

It is not essential that the object be removed from the hole if the cavings can be removed from around it, and as the end of the tubing is lowered into the sand body and the loose sand blown out if the sand occupying the sides of the cave flow into the hole made around the end of the tubing it will not matter because they will be caught in the upward current and discharged through the annular space between tubing and casing.

This is the same general principle used in removing loose shifting sands that bury vessels in the sea bottoms, except that in ocean salvage operations suction pumps may draw the sand up to the surface where the depths are not too great, but if the flow of water can be set up regardless of the mechanics of the operation it is possible to clear a large space around the object that is buried because sand soaked with water will flow much as water. The angle of repose of a sandy body on the surface is about 43 degrees and probably much less when at the bottom of a body of water.

This ability to lower the tubing at the desired rate to equal the cleaning action is one of the particular features of the Arco process. The pressure of the gas that escapes from the lower end of the tubing is lower than when it enters at the upper end because of friction within the tubing and loss due to the cushioning of the stream against the fluid and solids. This reduction in pressure tends to keep the gas from entering the formation freely although in a few instances it is reported that very low formation pressures encountered in the bottom of the well has permitted a portion of the gas to escape into the formation. This meant extra volume of gas had to be used to clean such wells.

Bottom hole pressures as low as 260 pounds have been recorded in some Wilcox sand wells recently. Survey made by the Schlumberger electric prospecting method in other wells has indicated some very porous streaks in the Wilcox sands. Repair operations in the past have shown that cotton seed hulls used in attempting to seal off an open streak in the Wilcox sand have passed to the adjacent wells. These hulls must have flowed through openings of considerable size but such occurrences are not uncommon and have been reported in many other fields.

In one well mud loaded with red oxide of iron was used to try to seal off a portion of the lower formation. The offset well reported the red mud in the oil. It was then decided to plug the first well with cement and after it had set, in drilling it out a portion of a stick of cement about 2 inches in diameter and 14 inches long was recovered that clearly showed that it had been in a horizontal position, and had evidently flowed into a hole through which the red mud had previously passed because the outside of the cement was stained red.

It is not difficult to imagine that much loose sand within the Wilcox formation has been washed out during the periods of high velocity flow of gas and oil. These formations have also been badly shattered by the shots of nitroglycerin. The natural soft unconsolidated condition of this sand as found in the Oklahoma City Field has tended to make these conditions worse even though it may have added greatly to the porosity and permitted greater saturation of the formation with oil and gas.

Now that the edge and bottom water is moving into this formation under a relatively high differential pressure in favor of the salt water these conditions created by poor production methods forced upon the operators by proration restrictions will make it difficult to control water movement. In some instances it is reported that bottom water has been shut off, at least for the time being, by cementing. But judging from the experiences in the lower Simpson with bottom hole cementing it hardly seems that this will prove very effective for any length of time when applied to the Wilcox soft sand body.

Want Allowable Reduced

So the operators are hurrying cleanout proceedings as much as possible, taking as much of their allowable as they can produce, and hoping that their wells will not go to water immediately. It is recommended by the engineers connected with the umpire's office of the Corporation Commission that the allowable for this Wilcox sand zone be reduced from about 123,000 bbls. daily to not more than 75,000 bbls. and preferably cut back to between 50,000 and 60,000 bbls. daily so that the rate of production will not exceed the normal rate of salt water movement into the Wilcox sand under present differential pressures.

If this advice is followed it will permit a greater quantity of oil to be recovered from the Wilcox formation free from water. Even though water does enter all parts of the Wilcox sand zone by January, 1935, as now predicted, it will be possible to continue to recover oil for a long time to come. The principal disadvantage will be the additional cost of handling the water to the surface and disposing of it after the oil has been removed from the mixture.

IMPORTANT BOOKS
for the Oil Man's Library

"HANDBOOK OF CHEMISTRY AND PHYSICS"

The nineteenth edition of the "Handbook of Chemistry and Physics" has appeared and will be welcomed by all who have relied on the previous editions for dependable data within the fields of chemistry and physics. This new handbook of over 1,900 pages contains a wealth of material necessary for the scientist and engineer dealing with petroleum. The work of the laboratory and engineering departments will be much shortened where this book is used.

The "Handbook of Chemistry and Physics" is divided into five sections, now separated by means of a stiff yellow colored page on which is printed a summary of the contents for the section following. The five sections include:

1. Mathematical Tables. 2. Properties and Physical Constants. 3. General Chemical Tables. 4. Heat and Hygrometry, Sound, Electricity and Light. 5. Quantities and Units—Miscellaneous Tables. These data are arranged in convenient form, easily found by means of the extensive cross index, which would require many reference books to supply. Among the many tables and pages of useful information there are over 900 pages devoted to the constants and 4,000 organic, inorganic and metal-organic compounds.

Once you become used to this book you will not do without it.

This volume may be purchased through the Book Department of The Oil and Gas Journal at the regular price of $5, express prepaid. A copy will be forwarded promptly upon receipt of check or money order for that sum. Where no payment accompanies the order the book will be sent express c.o.d.

Effects on Oil Output of Turner Valley Gas Waste

CALGARY, Alberta, Nov. 19.—Addressing the Oil and Gas Shareholders Protective Association here, Dr. J. O. G. Sanderson, geologist, stated that if the two gasoline absorption plants now operating in the Turner Valley Field had been built in 1929, the record production of 1,300,000 bbls. of naphtha in 1930 would have been nearly doubled.

"The production of oil in this province for 1934 will again be over 1,000,000 bbls.," Doctor Sanderson said. "This will be the first such record since 1931, when production was 1,195,400 bbls. The record annual production was in 1930 when the total was 1,312,000 bbls. and 1,300,000 bbls. of natural gasoline were produced without recourse to gasoline absorption plant methods."

Doubt whether production would reach the 1,000,000-bbl. figure for any year for some time in the future was expressed. "The total this year is going to be over 1,000,000 bbls., again largely due to the fact that about 100,000,000 feet of gas daily has been processed and the fact that two relatively large gassers were brought in during the year. It is doubtful in the light of the rapid gas production decline in Turner Valley, and the nearly complete control of the field being taken by one large company who will probably restrict wastage, if the total will reach the 1,000,000-bbl. figure again for some time. Before such annual figures are surpassed again we shall have to bring in new productive areas."

Doctor Sanderson expressed the view that the small producing fields of Wainwright, Red Coulee and Skiff would assume new importance when flush production in the big oil areas to the south begins to wane. "In Alberta," he stated, "present drilling operations are going on from the border to Athabaska River and about 35 wells are being drilled.

Amazing
.... but inevitable
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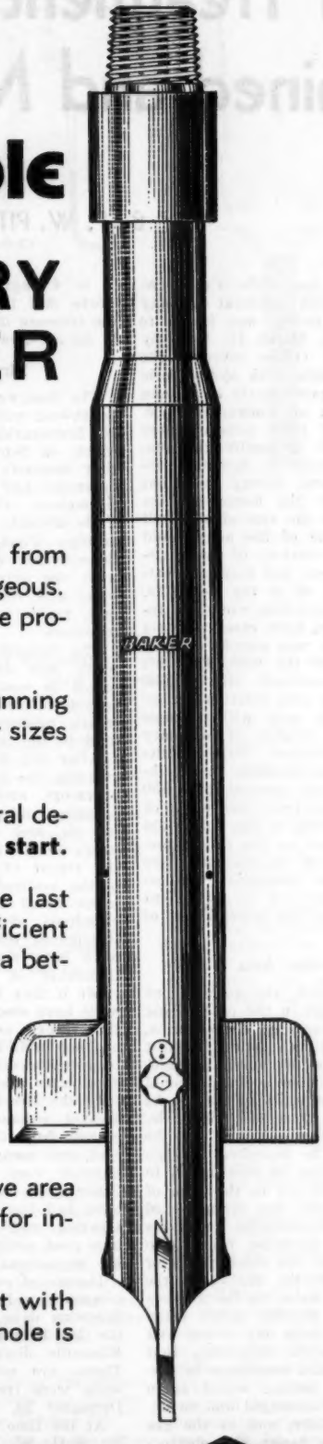

Here is what it does

1. **Bringing in and Cleaning Up the Well:** Scraping the mud from the face of the productive oil zone is highly advantageous. Production can often be further increased by enlarging the productive area.

2. **Under-Reaming For Setting Liners and Casing:** Ease in running liners and in bringing in a scraped well is assured. Larger sizes of liners and casing can be run.

3. **Straightening Crooked Holes:** Deviation corrections of several degrees can be made by creating a new shoulder **for a new start.**

4. **Under-Reaming Before Cementing:** By under-reaming the last twenty-five feet to bottom, the shoe joint will have sufficient clearance to permit complete distribution of cement and a better bond with the formation.

5. **Cementing Combination String:** Ample clearance around side cementing ports of a suitable "cementing hook-up" is assured by under-reaming, giving the best possible condition for a successful C. P. job.

6. **Cleaning Out Old Wells:** Cleaning and enlarging productive area in wells by under-reaming is the best **mechanical** means for increasing production.

7. **When Bottom Water Shut-off Fails:** Drill out old cement with bit—then ream to size of original hole or larger. The hole is then ready for re-cementing.

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Acid Treatment of Lime Wells Explained and Methods Described

By P. W. PITZER and C. K. WEST
Chemical Process, Inc.

Acid treating of lime wells is not new, neither is it as highly technical as many once thought. A patent was issued to Herman Frasch on March 17, 1896, by the U. S. Patent Office covering the treating of lime wells with hydrochloric acid, and various experiments have been made by the major oil companies since.

Until the fall of 1932, none of these experiments seemed to justify the general treating of wells to increase production. The general theory was that the acid placed in the bottom of the well would enlarge the size of the well hole, and that some of the acid would eat out into the crevices of the limestone, enlarging them, and thereby creating a free flow of oil to the well hole, with the result production would be increased. Actually in most cases the acid in small quantities was simply dumped into the bottom of the well, and left there until it neutralized. Since 1,000 gallons of a 50 per cent solution of 18° Baume hydrochloric acid will consume only about 1,850 pounds of ordinary limestone, it is evident little results could have been obtained from this method, since the simple removal of 1,850 pounds of limestone from the walls of the well at the bottom of the hole could have had little effect on the production. The results of these experiments were that in a few cases production was actually increased but not to an extent that would warrant the general use of acid.

Breckenridge Area

In the fall of 1932, the authors put forth the theory that in the case of old wells in the Breckenridge, Texas, area, there was a condition existing in most of these wells in which small particles of limestone or limestone sediment would slough off from the walls of the cracks and crevices away from the well hole, and these being carried along by the flow of oil would be deposited in such a manner as to cause an obstruction to the free flow of the oil to the bore of the well. This theory was strengthened by the fact that appreciable quantities of soft limestone particles may quite often be taken from the stock tanks of lime wells, and by the fact that the production of lime wells, in the absence of any mechanical trouble, would often vary up and down, from day to day and from month to month, indicating that the obstructions would sometimes be dislodged by natural means, would again form, and again be dislodged and so on. As the wells get older, and as the gas pressure drops, the easier the obstructions would form. Obstructions in newer wells would be cleared more easily because of greater gas pressure.

Under the above theory the remedy would lie in forcing the acid back into the formation, under whatever pressure necessary, and as quickly as possible, to avoid the acid being spent on the walls of the well hole itself. The acid being driven under pressure may follow fractures in the limestone through which no oil has previously passed and may lead to entirely new reservoirs of oil trapped in the formation. In most wells the gravity of the oil drops as the wells get older, and in many wells after acid treatments, the gravity has risen from 1 to 4 degrees. This would seem to prove that it was new oil which made the increase in production and not merely an accelerated flow of the old oil.

First in Southwest

The first well treated with acid in the Southwest was about 3 miles northwest of Breckenridge, Tex., on the Ackers ranch, on September 27, 1932. Prior to that successful treating, companies and operators had been selling many leases throughout the Ranger and Wichita Falls districts, especially the old Breckenridge Field, the purchasers taking these leases at nominal prices merely with the intention of salvaging what pipe, and other equipment they could pull, repair and use themselves or sell to others.

The thought of working over the old wells was far from the purchasers' minds in most cases, these wells being considered as entirely depleted and not worth producing by any method then used in the industry.

After the first well was treated, increasing the production about 10 times, operators and companies stopped the plugging campaign they had been carrying on, and took their old wells and leases off the market. Three weeks after the report of the increased production in the acidized well, no more wells and leases could be purchased in the area. Hundreds of wells previously plugged throughout the district no doubt could have been made to yield hundreds of thousands of barrels of high gravity crude if they had been acidized. Similar wells have since been treated and proved this theory to be correct, consequently no lime well is now plugged until acid is given a trial in increasing its production or making a producer of it.

In the Breckenridge area, many wells treated responded with production increases from 100 per cent to 5,000 per cent, and many old wells supposedly exhausted were put back on production. Other lime tests in the district, which have had but small oil showings before treating with acid, have been turned into good producers, the treatments acting phenomenally in many instances.

Dozens of examples of remarkable increases in prdouction could be cited. The following data on two wells treated for the Mid-Kansas Oil & Gas Co. in the Eliasville district of Stephens County, Texas, are not at all unusual. (Both wells were treated on the same day—December 23, 1932.)

At the time of treatment Mid-Kansas' No. 8 G. W. Hill, was making 6 bbls. per day. After treatment it started off at 100 bbls. and on October 6, 1934, was still making 36 bbls. During a period of 663 days 43,620 bbls. of oil had been produced, or 39,642 bbls. in excess of the normal production.

Mid-Kansas' No. 3 A. A. Atkins, at the time of treatment was making 4 bbls. During the same period (663 days) this well produced 17,890 bbls. of oil, or 15,338 bbls. in excess of its normal production, and is still making 22 bbls.

Black Lime Wells

At the time the above theory was put forth, a prediction was also made by the authors that very little if any results would ever be obtained from the acid treating of so-called black lime wells; not because the acid would not act on the black lime, but because the black lime being so much harder than the gray lime there would be no sloughing off of particles of the black lime and consequently no obstructions to the flow of oil. This prediction has since been proved correct, because so far as we know no black lime well has ever been materially increased by the use of acid.

Since the formation on October 1, 1932, of the Chemical Process Co., Inc., of which the authors are the active heads, much has been learned about the so-called acidization of lime wells, and many innovations have been made by the company. The use of acid has been extended into the field of new wells, with almost unbelievable results in hundreds of cases; methods of treatment have been worked out for various pools, the methods applicable to one pool, or to one individual well in many cases, being not at all suitable to another.

Important Innovations

Some of the more important innovations instituted by the Chemical Process Co., Inc., have been:

1. The installation of specially built high pressure pumps on all treating units to insure forcing the acid back into the formation.

2. The installation on all treating units of high volume, low pressure rotary, or centrifugal pumps for use on low pressure wells, the object being to get the acid back into the formation in the very shortest time possible. This we consider highly important because on many limestones the acid will become completely neutralized in a very few hours and on some in less than an hour.

3. The installation of a heating unit which is used in certain dolomitic and other areas where it has been found that best results are obtained by the use of hot acid. It has been found that in some areas best results are obtained by also heating the entire load of oil which is used to force the acid back into the formation.

4. The use of cold treatments in which the acid is cooled to around 60° F. in the Breckenridge, Anarene, Fisher County, and other areas in which it has been found that best results are obtained by retarding the action of the acid, thereby allowing it to reach farther back into the crevices before it is neutralized. Generally speaking, heating acid causes it to work faster, cooling it slows it down. As stated in the beginning, the so-called acidization of a well is not a highly technical operation, yet there are many common sense facts that must be known, necessitating the use of oil field men trained in this particular work. For example, it may be desirable to treat a well having production coming from two or more different lime pays; since fluid under pressure will follow the path of least resistance, and it is evident that the rock pressure of each stratum would be different, therefore all the acid would be driven back into the one having the lowest rock pressure, leaving the others not treated. This has been overcome in many cases by setting a packer on tubing between the two pays, where the formation would permit, and treating the two separately.

Method Used

As a general rule, in wells having only one producing horizon, the easiest, most convenient way of getting the acid to the bottom of the well is the best. They may be treated with the tubing and rods left in the hole, providing, of course, that the casing head is of such type and strength to withstand the necessary pressure, or if the tubing is out of the hole, the acid may simply be run into the well, a swedged nipple from the size of the casing down to 2-inch applied, the hole filled with oil and enough additional oil pumped in under pressure to drive the acid well into the formation. In few cases is it necessary or even desirable to "load" the hole before applying the acid. Pressures vary greatly in different pools, between parts of the same pool, and between wells in the same section. Pressures vary also in many cases during the course of treatment, many wells starting off at a low pressure and finishing at a high pressure, others starting with a low pressure, running up to a high pressure, and dropping back later to a low pressure and even to a vacuum, still others start with a high pressure and soon drop.

Attempts have been made on hundreds of wells to establish a relationship between the rise and fall of pressures, and the results obtained on the well, but so far no definite relationship has been established. However, we usually regard a pressure drop during the course of treatment as a very favorable sign.

Claims by some are made that a well, making oil and water from the same horizon, may be treated, increasing the oil but not the water. The Chemical Process Co. makes no such claim, it being evident that if the oil and water are coming from the same crack or crevice, that to enlarge the crevice will let in both more oil and more water, and our experience has been that the oil and water will increase in about the same proportion. However, if the well is making water from the bottom of the hole, clay, heavy shale mud, or any other heavy substance on which the acid will not act, may be placed in the bottom of the hole, forming a seal and thereby preventing the acid from being driven into the water-bearing formations, and increasing the water volume.

Repeated Treatments

Many wells have been treated with fair results the second, third and even the fourth time. However, the first shot usually gets by far the best results. Based upon this knowledge, most operators now prefer to use a larger amount of acid on the first treatment, many wells now being treated with from 3,000 to 5,000 gallons.

The acid treating of lime wells has long since passed the experimental stage and has become an established part of the oil business. It has in many lime areas largely supplanted the use of nitroglycerin. Where practical to use, the advantages of acid over nitroglycerin are many. Two of the most outstanding of these being the elimination of damage to the casing by nitroglycerin shots and the elimination of costly clean-out work which may take much time. With an acid treatment no cleaning out need be done after the treatment, the well being placed immediately upon production. There are, however, in a few chalk areas, especially in Louisiana, cases where a good swabbing or bailing is very beneficial to the well. In some sandy lime areas also, where the percentage of sand is rather high, it may be found necessary to use a sand pump to remove the sand which has been cut loose from the lime and carried into the well hole.

Just as there are limitations to the use of nitroglycerin, so are there limitations to the use of acid. Some get the idea that most any lime formation might

(Continued on Page 42)

Water Vapor Content of Natural Gas Found By Practical Method

By L. E. WOODRUFF
Texas Co. of California*

The subject of water vapor in natural gas has previously received attention and various aspects of the subject have been treated in the literature. For the most part these discussions have dealt with distributing systems and the problems pertaining to the removal of water formed by condensation in the lines.

It is the purpose of this paper to discuss briefly this subject as it pertains to collecting systems, particularly those where gas reaches the gasoline plant at atmospheric pressure or less, and to present a method and apparatus for the determination of water vapor in natural gas.

One of the characteristics of a liquid is that it tends to evaporate and fill the surrounding space with its vapor at a pressure which at any particular temperature is fixed and is known as its vapor pressure. Thus when a gas and water are brought into contact, the water begins to evaporate and if they remain in contact for a sufficient length of time, evaporation will continue until the partial pressure of water vapor equals the vapor pressure of water.

At this point the gas is said to be saturated and contains the maximum amount of vapor which it can hold at that temperature. Since, the mol fraction of vapor in such a mixture may be expressed as the ratio of vapor pressure to total pressure (VP/P), it is apparent that the maximum amount of vapor which a gas can hold, increases with increasing temperature and decreasing pressure.

Natural gas, as it is liberated from the oil, is in more or less intimate contact with water present in the oil, and consequently contains water vapor, the maximum amount of which is determined by the conditions of temperature and pressure at the point of liberation.

In a field where the gas reaches the plant at atmospheric pressure or less, the quality of vapor contained therein may constitute an appreciable portion of the metered volume and its consideration is of importance to the plant inspector interested in knowing the actual quantities of hydrocarbon materials.

If, as is sometimes the case, the gas at the plant intake is known to be saturated, its water vapor content can be easily calculated, as indicated above, but in general, in order to make a careful check, it is necessary to employ some means for its determination. A simple form of the dewpoint hygrometer has been found to be satisfactory for this purpose.

The aqueous dewpoint of a gas is defined as the temperature at which the partial pressure of water equals its vapor pressure. As already stated, a gas under such conditions is said to be saturated, and any decrease in temperature will cause water to be condensed.

In the determination of the dewpoint, advantage is taken of this fact by directing a stream of the gas to be tested against a polished metal surface, which is then cooled until dew is seen to appear. The determination of this temperature determines the partial pressure of water vapor in the mixture, since at this point the partial pressure of water vapor is equal to the vapor pressure of water.

The mol fraction of water vapor may be calculated from the following relationship:

$$X = \frac{VP}{P}$$

Where:

X = mol fraction of water vapor.

VP = vapor pressure of water at dewpoint.

P = total gas pressure.

*Presented before California Natural Gasoline Associatoin.

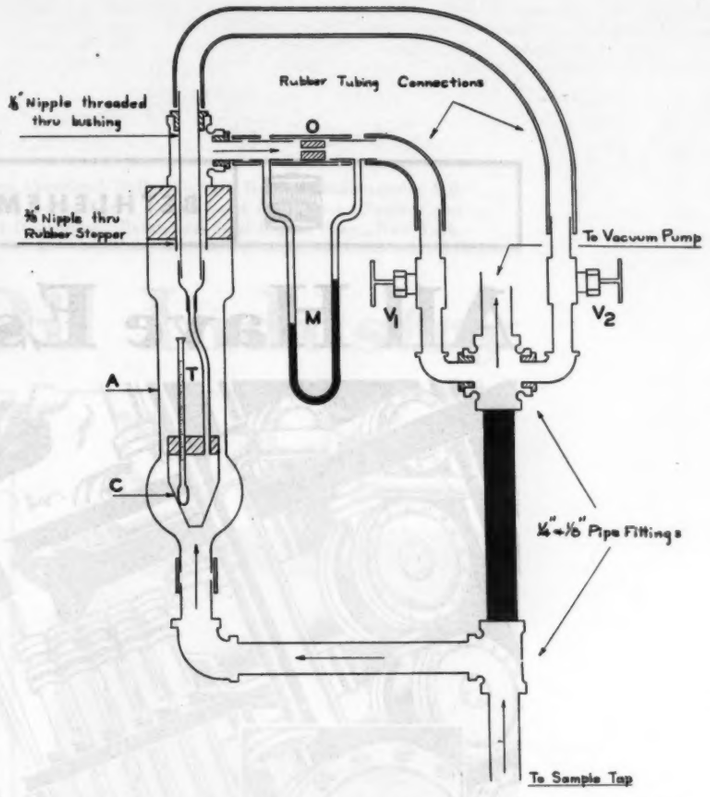

Fig. 1 Apparatus for determining the dew point as indication of moisture content of a gas

Dewpoint Apparatus

An apparatus which has been in use for some time, and which can be constructed at little cost from materials most of which are available in any laboratory is shown in the accompanying sketch, Figure 1. It consists essentially of the following parts:

(A) A glass cylinder through which may be drawn the gas to be tested. It is connected to pipe fittings as shown—at the lower end with rubber tubing, and at the upper end by means of a rubber stopper through which is inserted a three-eighths inch nipple. For this part the water jacket from the burette of a Hays gas analyzer was used.

(O) A glass orifice.

(M) A manometer giving the differential pressure across "O" and indicating the velocity of flow through "A."

(V_1) A one-eighth inch needle valve for regulating the flow through "A."

(C) A chromium-plated, copper condensing bulb. It is connected to valve "V_2" by means of a piece of rubber tubing, a one-eighth inch nipple threaded through the three-eighths inch fittings as shown, and a glass tube passing through a rubber stopper. This arrangement makes possible the control of the temperature in "C" by the evaporation of refrigerant therefrom. The approximate dimensions of the bulb are: Length, 2 inches; diameter, seven-eighths inch; wall thickness, three-sixty-fourths inch.

(T) A thermometer indicating the temperature in "C." Copper wool, packed around the bulb, acts as a heat conductor between it and the walls of "C."

Method of Operation

In making a determination, 5 ml. of ether is first introduced into the condensing bulb "C" through the rubber tubing connection. The instrument is then connected to the sample tap and vacuum pump.

With the sample tap valve open wide, valve "V_1" is cracked open and gas is drawn through the apparatus at a rate sufficient to cause a differential pressure across "O" of about 2 inches of water. This corresponds to a flow of about 0.03 cubic foot per hour at atmospheric pressure, and is not sufficient to cause any appreciable pressure drop through the apparatus.

When the air is judged to be purged out, valve "V_2" is cracked open and the ether evaporated so that the temperature in "C" is slowly lowered. At the first appearance of dew, valve "V_2" is closed and the temperature noted. With valve "V_2" closed, the evaporation of ether is stopped, and the temperature in "C" will rise. It is noted again when the dew disappears.

These two temperatures will differ by several degrees, due to the fact that as the temperature is being lowered, a certain amount of time will elapse after the true dewpoint has been reached, but before sufficient dew has been deposited to be visible, and the observed temperature will be too low. Similarly, as the temperature rises, a certain amount of time will be required after the true dewpoint has been reached before all of the dew can be evaporated, and the observed temperature will be too high. The dewpoint is therefore taken as the mean of these two temperatures.

These operations are repeated until successive determinations check to within 1° F. and the temperatures of appearance and disappearance of dew do not differ by more than 5° F.

The calculation of the mol fraction of water vapor is made as indicated above —"P," the gas pressure, being equal to line pressure.

While the apparatus will not withstand much greater than atmospheric

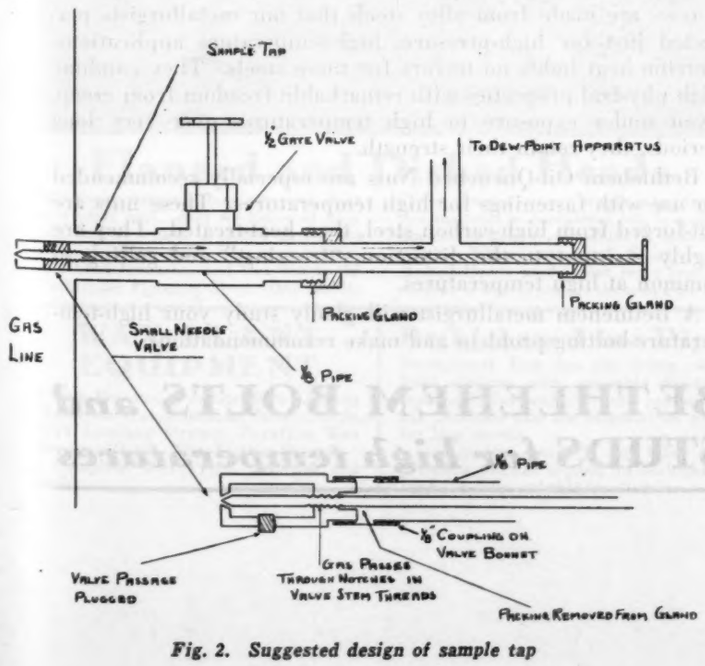

Fig. 2. Suggested design of sample tap

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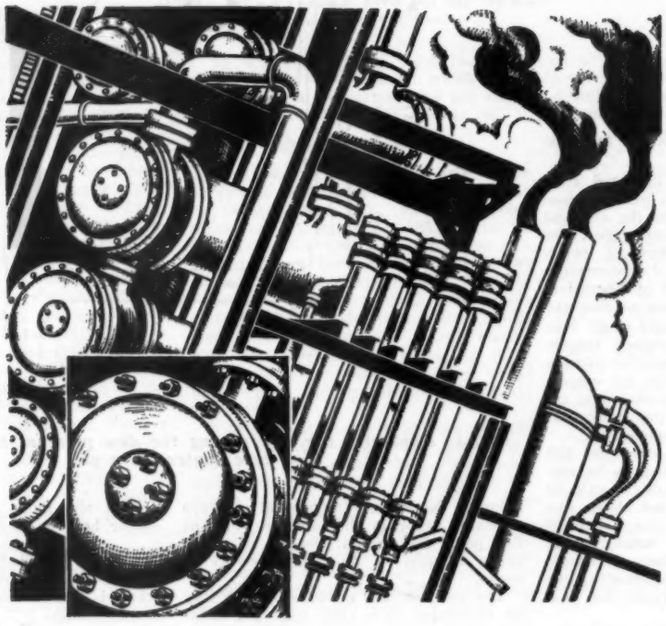
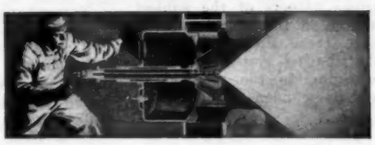
All Have Established Their



Bethlehem-Dahl *Mechanical Atomizing* Oil-Burning System



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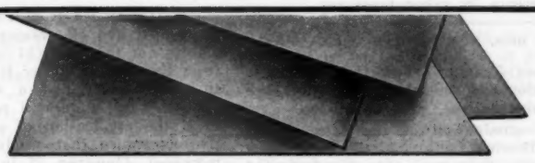
Worth in the Oil Industry



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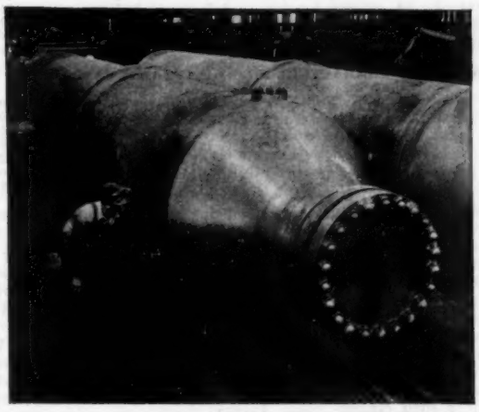

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pressure, it is possible to make determinations on gases flowing at considerably higher pressures by alternating the procedure somewhat. The sample tap valve is pinched and used as a pressure reduction valve, the gas then being drawn through the instrument at a suitable pressure and determinations made as before. This lowers the dewpoint, but does not in any way effect the mol fraction of water vapor, which is calculated as the ratio of the vapor pressure of water to the pressure in the instrument.

In some cases the dewpoint of the gas may be found to be above the atmospheric temperature. Under such circumstances the gas, in being withdrawn from the line, will be cooled and water may condense out in the sampling line ahead of the apparatus and in the glass cylinder "A" of the apparatus itself, and a true sample will therefore not be obtained.

In order to make the determination, it is necessary to remove the sample at a pressure which is sufficiently low to bring the dewpoint below the atmospheric temperature. This may be done by means of a special sample tap such as the one shown in Figure 2.

The tap itself is made of one-eighth inch pipe and is so constructed that it can be inserted into the center of the line through a one-half inch gate valve. By means of the small needle valve, the pressure is reduced at a point inside the line before the gas comes in contact with the cooler atmosphere.

Limits of Applicability

The design of this particular apparatus does not make it possible to determine dewpoints below 40° F. or at pressures in excess of atmospheric. This limits applicability to gases which contain water vapor in excess of 0.8 per cent. However, for most purposes the determination of water vapor becomes relatively unimportant below this limit, and the usefulness of the apparatus is not seriously impaired.

While the dewpoint method is generally recognized, and commonly used for the determination of atmospheric humidity, certain factors in the design of any particular instrument are known to affect its accuracy. Two such factors are the temperature differential between the condensing surface and the thermometer bulb, and the velocity of gas past the surface.

The apparatus just described was constructed without any previous knowledge as to the proper design with regard to these features to insure the best results. Experiments were therefore conducted to determine roughly its accuracy.

The experimental method consisted of saturating gas with water vapor at a known temperature, and then superheating it and determining its dewpoint—the difference between this determined dewpoint and the known saturation temperature being a measure of the accuracy of the determinations.

A glass graduate approximately 15 inches tall and 1½ inches in diameter, two-thirds filled with water and packed with copper wool, served as a saturator. The superheater consisted of a coil of copper tubing in a water bath at 100° F. It was used in order to more nearly duplicate actual field conditions, where the gas usually enters the apparatus superheated.

TABLE 1—SHOWING VARIATIONS IN TEST RESULTS

Saturation temp., °F.	Dewpoint °F.	Difference °F.	Per cent error	Differential in. H_2O	Pressure m.m. Hg.
43.0	40-43 (41.5)	−1.5	5.6	1	42
43.5	41-43 (42)	−1.5	5.6	1	42
42.0	40-42 (41)	−1.0	3.8	½	38
42.0	40-42 (41)	−1.0	3.8	½	38
43.0	41-43 (42)	−1.0	3.8	1½	42
43.0	41-43 (42)	−1.0	3.8	1½	42
42.0	36-46 (41)	−1.0	3.8	1	759
42.5	40-44 (42)	−0.5	1.9	1	759
43.0	39-44 (41 5)	−1.5	5.6	1	759
44.0	41-46 (43.5)	−0.5	1.9	1	759
44.5	42-46 (44)	−0.5	1.9	1	759
39.0	38-42 (40)	+1.0	3.9	2	756
39.0	37-42 (39.5)	+0.5	2.0	2	756
41.5	38-44 (41)	−0.5	1.9	1	598
42.0	40-43 (41.5)	−0.5	1.9	1	598
43.5	41-45 (43)	−0.5	1.9	1	464
44.0	41-45 (43)	−1.0	3.8	1	464
48.0	47-48 (47.5)	−0.5	1.9	1	80
48.0	47-49 (48)	0	0	1	80
50.0	49-51 (50)	0	0	1	307
50.0	48-50 (49)	−1.0	3.7	1	307
50.0	49-50 (49.5)	−0.5	2.1	1	307
52.0	49-55 (52)	0	0	1	460
52.5	49-54 (51.5)	−1.0	1.8	1	460
52.5	49-54 (52)	−0.5	1.8	1	460
58	50-54 (52)	−1.0	3.6	1	756
53.5	51-54 (52.5)	−1.0	3.6	1	756
53.5	51-55 (53)	−0.5	1.8	1	756
68.5	66-69 (67.5)	−1.0	3.4	1	756
68.5	67-69 (68)	−0.5	1.7	1	756
69.0	67-70 (68.5)	−0.5	1.7	1	510
69.0	67-70 (68.5)	−0.5	1.7	1	366
69.0	68-70 (69)	0	0	1	53

TABLE 2—AVERAGE CHARACTERISTICS OF INTAKE GASES

Gas No.	Line Temp., °F.	Line pres. in. vac.	Dewpoint °F.	Pct. H_2O vapor	Pct. Sat.
1	90	17.5	43.5	2.3	20
2	87	18.0	57.0	3.9	36
3	73.5	11.5	69.0	3.9	86
4	79	17.5	60.0	4.2	52
5	88	19.0	67.5	7.7	50
6	77	20.5	76.0	9.5	96

Dry gas (absorber discharge gas, with approximate specific gravity of 0.720) was bubbled through the saturator and then drawn through the superheater and dewpoint apparatus. Determinations were made over a range of temperatures from 39° F. to 69° F. and from 38 m.m. to 759 m.m. Hg. abs.

The results are shown in Table 1. In Column 2 the two observed temperatures (i.e., the temperatures of appearance and disappearance of dew) are shown together with their average, which is the accepted value of the dewpoint. The difference between figures in Columns 1 and 2 represents the errors in the determinations and are shown in Column 3. Per cent error was calculated on the basis of the difference in vapor pressures. Per cent error =

$$\frac{\text{Difference in vapor pressures}}{\text{Vapor pres. at saturation temp.}} \times 100.$$

Columns 5 and 6 show the manometer indication and the test pressure for each determination.

An examination of the data reveals the following facts: (1) With but few exceptions the errors show the indicated dewpoint to be too low. (2) In a series of 33 determinations the largest error was 1.5° F.

The low results are probably due to the difference in temperature between the condensing surface and the thermometer bulb. However, it seems safe to conclude that over the range of these tests the instrument is accurate to within 1.5° F. The effect which this error would have on the water vapor content varies slightly with the dewpoint temperature. For gases having dewpoints between 40° F. and 80° F. an error of 1.5° F. is approximately equivalent to 5.5 per cent of the water vapor content.

Table 2 shows the results of determinations made on six representative plant intake gases. Water vapor contents vary considerably, as is to be expected. The importance of considering water vapor in low pressure gas measurement is clearly indicated.

Column 6 gives the per cent saturation, or relative humidity—that is, the ratio of actual mol fraction of water vapor to the mol fraction the gas would contain if it were saturated at line temperature.

While the apparatus described is perhaps not the only type which could be used for the determination of water vapor in natural gas, it is one which can be constructed at little cost in any laboratory. The method is simple and gives results which are sufficiently accurate for use in the field in connection with gas metering.

Key to Abbreviations Used in Drilling Reports

Abd., abandoned.
Bldg., building.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
C.L., center line.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in materials.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging (or plugged) back.
P.B.P., pulling big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.P., pulled pipe.
R. or Rmg., reaming.
R.A., right angle (referring to location).
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.R.T., rig going up, rotary tools.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdtr. or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.W.O., shut down waiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.M.B., state mining bureau.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
Stk., streak.
S.W., salt water.
Swb., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.O.O.K., water shutoff O.K.
W.S.O.N.G., water shutoff no good.
W.S.R. or W.O.S.R., wait on standard rig.

Acid Treatment of Lime Wells Explained

(Continued from Page 38)

be treated and oil obtained. This is decidedly not the case. Oil cannot be made from limestone. Neither is the fact that in a laboratory test a sample of the formation to be treated reacts violently upon the application of acid any positive assurance that production will be increased. However, if in a laboratory test it is found that the sample does not react, it is useless to treat the well.

In completing new wells in lime areas, where acid treatments are contemplated, care should be taken to case off all open sand formations which might take up the acid, and good casing should be set and cemented on top of the lime.

A large amount of money has been saved rotary drilling contractors by an interesting sideline process that has been used with success during the past year—that of freeing rotary drill pipe where it is stuck in a limestone formation. This is accomplished by properly "spotting" the acid on the limestone formation, which enlarges the hole, thereby freeing the pipe. Acid has also been used in lime tests to soften the extremely hard lime so as to facilitate drilling, and no doubt many more uses will be found for acid as the industry continues to experiment with it in all areas, and under different conditions. Its prime purpose, however, will be for increasing production as it has already brought in many millions of dollars to operators and companies, which would have been missed if acid had not been resorted to in an effort to bring back old wells on production, and raise production in others.

Legislative Program At I.P.A.A. Convention

A program for legislation by Congress will be presented at the fifth annual meeting of the Independent Petroleum Association of America, at Fort Worth, Tex., December 7 and 8, according to President Wirt Franklin.

Included is limitation of withdrawals from storage, balancing production with demand, inclusion in any Federal legislation of authorization by Congress of an interstate compact, and that when two or more oil-producing states enter such compact they shall be excluded from any such Federal legislation so long as the compact states keep their total production within the Federal allocation.

RESEARCH IN PENNSYLVANIA

HARRISBURG, Pa., Nov. 19.—Pointing out that exclusive of fabricating there are twice as many persons in Pennsylvania engaged in extraction and primary processing of the various natural resources as there are in agriculture, representatives of the primary industries in the commonwealth expect a favorable reception for proposed legislation which would place $300,000 at the disposal of the school of mineral industries, Pennsylvania State College, to be used during the next two years in furthering research along these lines. In spite of the greater dependence of Pennsylvania upon the mineral industries, the State spends about $15,000 a year on mineral research as compared with $600,000 for agriculture. Of the $300,000 requested, $30,000 would go to the oil and gas research department.

Summary of Recent Research Work Upon Organic Content of Sediments

By PARKER D. TRASK[1] and HARALD E. HAMMAR[2]

The American Petroleum Institute for the past eight years has been sponsoring an investigation of source beds of petroleum. During the last three years it has had the financial co-operation of the U. S. Geological Survey in this work. Source beds are the substances in the ground that generate petroleum. If no source beds are present in an area, there can be no oil field. Consequently, in the exploration for oil in unproven territory it is highly desirable for the oil operator to know the extent to which source beds occur in the area; for, if adequate source beds are not present, there is no object in his wasting money by futile drilling. The purpose of this research project is to ascertain the diagnostic characteristics of source beds in order to aid the geologist in advising the oil operator most effectively to prospect unknown areas for petroleum.

As petroleum consists of compounds in which carbon is the principal component, its origin must be intimately associated with the carbon compounds that have been preserved in the sedimenst. These carbon compounds are derived from the remains of plants and animals that lived in the water at the time the sediments were deposited. Consequently, in order to trace the changes that have taken place in the sediments during the millions of years they have lain buried in the ground, the investigation of the problem began with recent sediments. Five years were devoted to the study of recent sediments, and a comprehensive report of the work has been published.[3] For the past three years ancient sediments from the vicinity of oil fields have been investigated, and two papers have been published.[5, 3] The method of attack has been to try to find relationships between certain constituents of the sediments and the occurrence of oil, i.e., to find certain features characterizing the sediments associated with oil horizons and lacking in sediments not associated with oil horizons. Because of the great variation in types of sediments and the thickness of strata in which oil is found, the first step was to make very simple tests on a large number of sediments. If, after these had been made, no relationships were found, then more complex tests could be made. However, in that event, the preliminary simple tests would at least serve to narrow the field and guide the selection of the sediments upon which the complex tests should be made.

The simplest test is the determination of the total content of carbon compounds, i.e., the organic constituents, in the sediments. In order to ascertain the organic content of the sediments, it is practicable to study the variations of five different characteristics of the sediments—the carbon content, the nitrogen content, the volatility, the texture, and the degree of oxidation of the sediments. Consequently, the first phase of the investigation of ancient sediments consisted in ascertaining the general distribution of organic matter among different types of sediments and the variations in the ratios of these five characteristics to one another. More than 25,000 samples from California, Wyoming, Montana, Colorado, Kansas, Oklahoma, and Texas were collected. The volatility and texture of all the samples were ascertained, nitrogen was determined on 4,000 samples; the degree of oxidation was measured on 2,700 samples, and carbon was analyzed on 800 samples. The ratios of these five characteristics to one another are now being calculated, and preliminary estimates of the variation in organic content of about 120 formations or zones of sediments have been made. The object of this paper is to summarize the general distribution of organic matter among different types of sediments as indicated by these preliminary estimates.

Ratios

As the methods of determining the organic content of sediments have been described previously,[4] only a brief summary is included here. The organic content of sediments is determined most conveniently by indirect means. The chemical composition of organic matter in ancient sediments is about two-thirds carbon, and one-third nitrogen, hydrogen, oxygen, sulphur, phosphorus, and other elements. The carbon and nitrogen content of the organic matter can be determined directly, but the content of the other elements in the organic matter cannot be ascertained satisfactorily; as these other elements occur in the inorganic constituents as well, and it is difficult to ascertain which parts of them belong to organic constituents and which to inorganic constituents. Consequently, the most feasible means of ascertaining the organic content is to determine carbon and multiply it by a factor of 1.5. This factor, of course, is an approximation, as the percentage of carbon varies in different types of organic matter in sediments; but until more is known about how it varies, this factor of 1.5 seems the best to use.

The carbon content of the sediments, although it can be determined directly, is ascertained most practicably by means of its ratio to other characteristics of sediments, viz., the nitrogen content, degree of oxidation of the sediment, volatility, and texture. The ratio of carbon to any one of these four characteristics is constant, or fairly constant, in many formations or parts of formations. If the ratio and its variability for any particular group of sediments is known, the carbon content can be estimated from the ratio. For example, in the Pliocene and Miocene sediments in the Santa Fe Springs oil field near Los Angeles, the ratio of carbon to nitrogen is approximately 14 throughout several thousand feet of strata. Consequently, if the nitrogen content of any particular sediment in this area is known, its organic content can be considered as being 14 times the nitrogen content.

The question of whether carbon should be determined directly or by means of any one of the four ratios depends largely upon the number of samples to be analyzed and the accuracy that is desired. Because of the slowness of the method of analysis and the relatively high probable error of individual analyses, carbon is determined directly on comparatively few samples. In fact, it is determined directly on only enough samples to ascertain the ratios to be used in the estimation of the organic content by these four other characteristics of the sediments. Of these four characteristics, nitrogen and the degree of oxidation are the most reliable. The degree of oxidation is determined more rapidly than is nitrogen, but the ratio of carbon to the degree of oxidation seems to be more variable than the ratio of carbon to nitrogen. Also, the organic content, when determined by means of the degree of oxidation, is affected by the presence of oily substances that have migrated into the sediments, but not when it is determined by means of nitrogen; because these oily substances contain practically no nitrogen. The volatility is determined much more rapidly than either the degree of oxidation or nitrogen; but the method of determination is much cruder, and the ratio of the volatility to carbon is more variable. The main purpose of the volatility test is to determine rapidly the general order of magnitude of the organic content of a large number of samples. The advantage of the texture determination is that it lessens the number of samples that need to be collected in order to estimate the organic content of a sequence of sediments; for, if the relation of the texture to the organic content is found to be fairly constant over a considerable thickness of sediments, as seems to be a common occurrence, the organic content of the sediments can be estimated from the texture, and it is unnecessary to collect samples at short intervals.

The procedure of estimating the organic content of the sediments is:

1. Ascertain the ratio of carbon to nitrogen and of carbon to the degree of oxidation by means of an adequate number of well-duplicated analyses.

2. Determine the volatility of all the samples collected, primarily in order to ascertain the general variability in organic content of the sediments.

3. Determine the nitrogen or degree of oxidation on about 25 per cent of the samples, the selection of the samples to be analyzed being based on the estimates of the organic content as indicated by the volatility of the sediment.

4. Compute the organic content of the samples analyzed in step (3) by means of the ratios obtained in step (1).

5. Calculate the ratio of the volatility to the carbon content for all samples considered in step (4).

6. Compute the organic content of all the samples in which the volatility was determined by means of the ratios obtained in step (5).

7. Determine the ratio of the texture to the organic content for all samples considered in step (6).

8. Determine the variations in texture of the entire sequence of sediments to be considered.

9. Compute the organic content of the sediments from the texture by means of the ratios obtained in step (7).

Carbon is determined by wet combustion with potassium permanganate, the carbon being collected as carbon dioxide in tubes of askarite and weighed.[6] Nitrogen is determined by the regular Kjeldahl method, mercury being used as a catalyst and sodium sulphate to raise the boiling point. The volatility is measured by distillation of a small but definite quantity of the pulverized sediment in a narrow pyrex tube, the volatility being measured in terms of the tarry material that condenses on the upper walls of the tube.[6] The degree of oxidation is measured by a procedure used by Waksman,[7] which consists of determining the amount of chromic acid that can be reduced by the sediment. The texture is ascertained by inspection with hand lens or binocular microscope.

Degree of Oxidation

As the writers have not previously reported their experience with the method of determining the degree of oxidation, the test is described here. The sediment is ground, dried in the oven at a temperature of 105° C., and ordinarily 0.5 gram is weighed out. However, if there is reason to believe that the sample is rich in organic matter, only 0.2 gram is used; or if poor in organic matter, 1.0 gram is taken. The weighed quantities of sediment are placed in 200-cc. erlenmeyer flasks, 10 cc. of chromic-acid reagent (a) are added, and the flasks are covered with small short-stemmed funnels to prevent escape of liquid. The flasks are then placed on a moderately-warm hot-plate, the contents are brought to a boil, and allowed to boil gently for exactly five minutes. The flasks are set aside to cool; and after they have cooled, the contents are transferred to a 400-cc. beaker, approximately 250 cc. of distilled water being used in the process. Care should be taken to rinse the funnel and flask thoroughly while the contents are being transferred to the beaker. Ten drops of diphenylamine indicator (b) and 5 cc. of phosphoric-acid titrating solution (c) are added to the contents of the beaker. The solution is then titrated with 0.2 normal ferrous ammonium-sulphate reagent (d) from a burette until the light-blue or violet-blue color changes to green. On standing, the solution should become dark green. The color during titration changes from brown or brownish-green to violet-blue or blue, and then to light green. In some samples, however, the violet-blue color is replaced by a light blue, and the transition to light green is difficult to detect. Such samples should be observed carefully as the endpoint is reached. The phosphoric-acid reagent is used to make the endpoint more distinct. A solution of sodium fluoride was tried out, but was found unsatisfactory.

The samples are run in sets of 40; and a control which contains no sediment, but to which all the reagents are added, is included in each series. The number of cubic centimeters of ferrous ammonium sulphate required to titrate the chromic acid in the control (usually about 26 cc. is taken as a standard) and the difference between the number of cubic centimeters needed to reduce the chromic acid that was unaffected by the sediment, multiplied by a factor of 0.5, gives the approximate number of milligrams of carbon in the sample. For example, if the control is 25.8 cc. and 14.4 cc. of ferrous ammonium-sulphate reagent are consumed in the titration of the sam-

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[1] U. S. Geological Survey, Washington, D. C. Authors' title: "Organic Content of Sediments."

[2] Research associate, American Petroleum Institute, National Bureau of Standards, Washington, D. C.

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[3] P. D. Trask, H. E. Hammar, and C. C. Wu, Origin and Environment of Source Sediments of Petroleum, Gulf Publishing Co., Houston, Texas (1932).

[5] P. D. Trask, "Results of the American Petroleum Institute Research Project on Origin and Environment of Source Sediments," Proc. Amer. Pet. Inst., 14 M. (IV), 19-31 (1933). (Prod. Bull. 211).

[3] P. D. Trask and H. E. Hammar, "Preliminary Study of Source Beds in Late Mesozoic Rocks on West Side of Sacramento Valley, California," Bull, Amer. Assoc. Petrol. Geol., 18, p. 1346-73 (1934).

[4] P. D. Trask, H. E. Hammar, and C. C. Wu, op. cit., p. 18-36; P. D. Trask, op. cit., p. 22-4; and P. D. Trask and H. E. Hammar, op. cit., p. 1356-62.

[6] S. A. Waksman and R. L. Starkey, "On the Growth and Preparation of Sulphur Oxidizing Bacteria," J. Gen. Physiol., 5, 285-310 (1923).

[6] P. D. Trask, H. E. Hammar, and C. C. Wu, op. cit., p. 25-9.

[7] S. A. Waksman, personal communication.

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4. FLOWS QUICKLY at low temperatures—protecting cars against "dry" starts.
5. RESISTS HEAT . . . holds its body at high temperatures, giving full protection.

ples, the quantity of chromic acid that was reduced by the sediment is equivalent to 25.8—14.4=11.4 cc. of ferrous ammonium sulphate. If a factor of 0.5 is used, this represents 5.7 mg. of carbon.

Waksman[1] finds a factor of 0.6 more satisfactory for recent sediments, but a comparison of several hundred chromic-acid and direct-carbon determinations of ancient sediments indicates that a factor of 0.5 is much better for ancient sediments. The proper factor to use varies in different types of sediments, chiefly from 0.45 to 0.55; but, as a general rule, 0.5 is the best single factor.

In some samples the organic content is so large that 10 cc. of chromic-acid reagent is insufficient to oxidize all the organic matter in the sediment. In such a case the chromic acid turns brown or brownish-yellow, and it is necessary to add another 10 cc. of chromic-acid reagent to the sediment. In the calculation of the carbon content, the number of cubic centimeters of ferrous ammonium sulphate required for titration is subtracted from twice the number of cubic centimeters of ferrous ammonium sulphate needed for the control.

The following reagents are used:

a. 0.4 normal solution of chromic acid in strong sulphuric acid:
   40 g. of $K_2Cr_2O_7$ or 32 g. of CrO_3 are dissolved in one liter of distilled water, and one liter of concentrated sulphuric acid of specific gravity of 1.84 is then added to the chromic-acid solution.
b. diphenylamine indicator:—
   0.5 g. diphenylamine is dissolved in 100 cc. of concentrated sulphuric acid to which 20 cc. of distilled water has been added.
c. phosphoric-acid titrating solution:—
   100 cc. phosphoric acid.
   250 cc. concentrated sulphuric acid.
   150 cc. distilled water.
   The substances are mixed, and 2 cc. to 3 cc. are used for each 100 cc. of solution to be titrated.
d. 0.2 normal solution of ferrous ammonium sulphate:
   80 g. of ferrous ammonium sulphate is dissolved in one liter of water to which 20 cc. of concentrated sulphuric acid has been added. The solution is standardized to 0.2 normal, with 0.1 normal potassium permanganate. One cubic centimeter of this solution corresponds to about 0.5 mg. of carbon.

The method is rapid and reliable. One person can make 40 to 50 determinations a day. In order to test the reliability of the method, more than 100 samples were analyzed in duplicate. The results indicate that, in terms of the organic content of the sediments, two-thirds of the individual determinations differed less than 5 per cent from the mean, and 85 per cent differed less than 10 per cent from the mean. In terms of the total weight of the sediment, which is the basis used for reporting the results in one-half the analyses, the determinations deviated less than 0.04 per cent from the mean, and in 85 per cent of the analyses by less than 0.18 per cent. In consideration of the small quantity of organic matter in sediments, these data indicate that the method is satisfactory and reliable.

Texture

In the determination of the relation of the organic content to the texture, two variables have to be considered: 1, the general increase in organic matter with increase in fineness of the constituent particles of the sediments; and, 2, the variations in the organic content of the sediments of the same texture. In any sequence of sediments, the clay shales contain about twice as much organic matter as the sandy shales or siltstones, and the sandy shales or siltstones contain about twice as much organic matter as the fine-grained sandstones.[2] This relationship of organic content to texture in general should hold for most types of sediments, because of the physical conditions under which organic matter is deposited. Organic matter is relatively buoyant, and ordinarily it settles to the sea floor slowly, i.e., the rate at which it falls to the bottom is comparable to that of fine clay particles. Consequently, conditions which favor the deposition of fine particles in sediments should also favor the deposition of organic matter, regardless of whether there was much or little organic matter in the overlying water.

In the computation of the organic content of sediments, the relation that is sought for is the content of organic matter in different sediments of the same texture. Among different sequences of sediments, the organic content of the sands should be compared with the organic content of other sands; the organic content of the silts should be compared with the organic content of other silts; and, similarly, the organic content of clays should be compared with that of other clays. That is, in order to compare the organic contents of different groups of sediments, it would be desirable to segregate the sediments into three or more textural groups and compare the variations of organic content for each group, were it not for the apparent constancy of the relation of the organic content to the texture in individual groups of sediments. As the organic contents of clays, silts, and sands in individual depositional units are of the order of magnitude of 4, 2, and 1, respectively, regardless of what the relative organic content may be, it is possible to compensate the organic content for the texture and refer all the sediments to a common texture—which, for convenience, is taken as a silt. Thus, if the carbon content of the clay shale is divided by 2.0, of the siltstone or sandy shale by 1.0, of the fine-grained sandstone by 0.5, and by appropriate factors for intermediate textures, the organic content of the sediments is reduced to a common basis.

The ratio so obtained is called the "relative organic content," and it is this ratio that is used in the determination of the organic content by means of the texture. In recent sediments in the Channel Islands region, California, it is 1.6; in the Pliocene sediments of the Santa Fe Springs oil field it is about 1.0; and in the Cretaceous sediments of northern California it is about 0.6.[3] It has not yet been calculated for other groups of sediments.

Distribution of Samples

The general distribution of samples that have been collected and the progress that has been made in the analysis of the samples are shown in Table 1. Nearly all the 25,000 samples that were procured are well samples; but some 3,600 outcrop samples, distributed rather representatively over California, Wyoming, and northern Colorado, were obtained—mainly for the purpose of ascertaining the effect of weathering on the organic content of sediments. In California the well samples are all core samples; in the Rocky Mountain area they are all cable-tool samples; in the Mid Continent they are mostly cable-tool samples, but a small proportion are rotary samples; and in Texas they are nearly all rotary samples—although a significant number are cores.

TABLE 1—SUMMARY OF ANALYSES

General region—	Areas represented	Wells represented by 10 or more samples	Carbon	Number of samples analyzed: Degree of oxidation	Nitrogen	Nitrogen or degree of oxidation	Total samples
California:							
Santa Fe Springs Field	1	55	261	181	468	468	*2,745
Other Los Angeles Basin areas	13	24	...	50	629	629	2,236
Other southern California areas	5	6	...	35	318	318	845
San Joaquin Valley	4	4	...	20	186	186	664
Outcrop samples from Sacramento Valley	5	6	40	127	188	222	526
Other outcrop samples	15	15	...	9	698	698	2,043
Total California	43	110	301	422	2,487	2,521	9,059
Rocky Mountain area:							
Salt Creek Field	1	9	83	94	145	149	1,281
Other Wyoming areas	24	24	29	380	273	520	2,318
Colorado	9	9	...	205	63	216	863
Montana	1	1	...	37	12	37	162
Outcrop samples	15	13	...	355	355	355	1,027
Total Rocky Mountains	50	56	112	1,071	848	1,277	5,651
Mid-Continent area:							
Ritz-Canton area	1	9	5	94	21	94	920
Other Kansas areas	5	5	50	78	56	78	490
Burbank area	1	22	101	122	139	140	2,475
Oklahoma City area	1	3	11	94	14	94	854
Seminole area	1	8	64	145	72	185	1,648
Other Oklahoma areas	3	0	...	3	...	3	11
Total Mid-Continent	12	47	231	536	302	594	6,398
Texas:							
East Texas Field	1	38	98	107	131	141	1,845
East Texas Basin	28	29	50	294	121	301	1,466
Gulf Coast area	4	4	...	206	29	206	841
West Texas	2	2	...	64	21	65	327
Total Texas	35	71	148	671	302	713	4,481
Grand total	140	284	792	2,700	3,939	5,105	25,589

*All samples are well samples unless otherwise indicated.

The carbon content of about one sample in four has been estimated by means of nitrogen or degree of oxidation, for Wyoming and California; but for the Mid-Continent and Texas it has not yet been possible to make more than one such determination for each eight samples. During the current fiscal year more samples from Oklahoma, Kansas, and Texas are scheduled for analysis.

The samples have been correlated more or less definitely as to geologic age, and they have been segregated into 120 formations or parts of formations. The distribution of organic content among these 120 zones of sediments has been estimated by means of the nitrogen content or the degree of oxidation of the sediments, but it has not yet been possible to calculate the organic content on the basis of the volatility and texture. In other words, of the nine steps for the determination of the organic content outlined above, the calculations thus far have been completed only through step (4), i.e., the estimates of the organic content of these 120 zones of sediments are based on the 5,000 samples on which carbon, nitrogen, or degree of oxidation have been completed only through step samples on which the volatility and texture have been ascertained. Therefore, as the calculations are not yet completed, it is impracticable to present detailed results at this time. However, as the estimates of the organic content are based on so many determinations, they certainly indicate the order of magnitude, and warrant summarizing the general distribution of organic matter among these 120 zones of sediments.

Ordinarily it is preferable to discuss the organic content in terms of organic carbon, because organic carbon can be determined with a certain degree of definiteness; but since petroleum is derived in part from components of the organic matter other than carbon, it seems better in this report to present the data on the basis of the total content of organic matter in the sediments. However, although the data are given in terms of total organic content, they actually are based on the carbon content; and, as discussed above, the organic content has been taken to be 1.5 times the carbon content.

General Distribution

The results of the analyses demonstrate that sediments, in general, contain relatively little organic matter. Of the 120 formations or parts of formations that were considered, 38 per cent average less than 1 per cent organic matter; 33 per cent average between 1 and 2 per cent; 14 per cent between 2 and 3 per cent; 11 per cent between 3 and 5 per cent; and 4 per cent average more than 5 per cent organic matter.

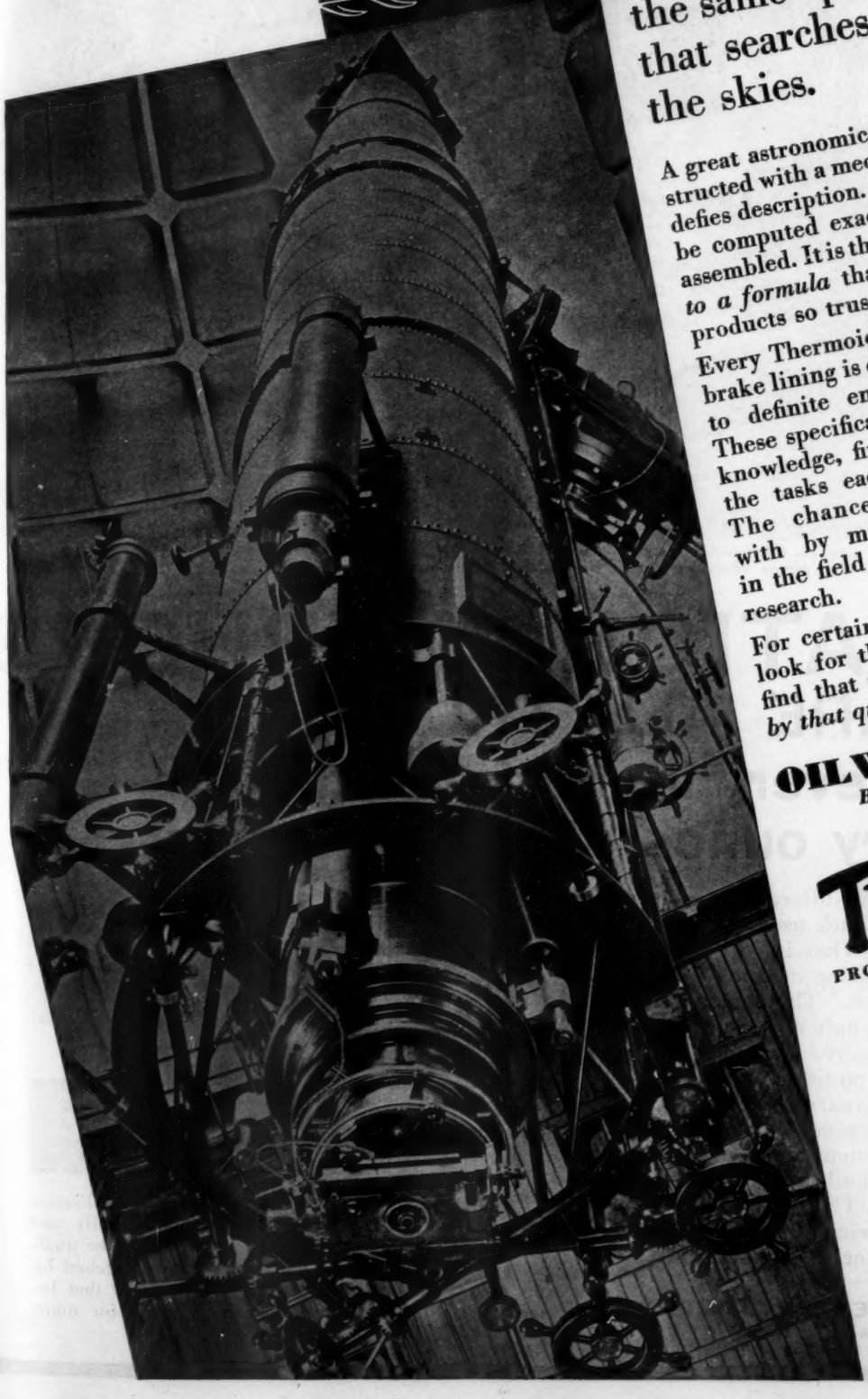
The general organic content of the formations studied may be summarized as follows: The Pliocene formations of California, as a rule, contain about 2 per cent organic matter, although some parts of the lower Pliocene in the south and west sides of the Los Angeles basin contain as much as 4 per cent. The organic content of the Miocene formations in southern California is about 4 per cent, although the range is from 1 to 13 per cent. The Cretaceous formations in northern California contain slightly more than 1 per cent. In Wyoming and northern Colorado, the average organic content of most of the Cretaceous formations is 1.5 to 3 per cent, and of the older formations 1 per cent or less. In the Mid-Continent, the Permian formations contain less than 1 per cent organic matter; the formations in the upper part of the Pennsylvanian contain 1 to 2 per cent, and in the lower part about 2 per cent; the "Mississippi lime" contains less than 1 per cent; beds correlated with the Chattanooga shale range in organic content from about 1 per cent in south central Kansas to 5 per cent in southern Oklahoma; and the underlying formations contain less than 1 per cent organic matter—except for parts of the Sylvan shale and Viola limestone, which contain as much as 2 per cent. In the East Texas basin the Cretaceous formations contain between 1 and 2 per cent organic matter—with the exception of the Glen Rose limestone, which possesses less than 1 per cent, and the Eagle Ford shale or clay, which averages about 2.5 per cent. In west central Texas, in the Big Lake area, the organic content of the Pennsylvanian shale ranges between 2 and 5 per cent; and in the underlying formations it is in general less than 1 per cent. In the southern part of Gulf Coastal region of Texas the organic content of the sediments, as indicated by the few wells that were examined, is generally less than 1 per cent in the formations above the Eocene, and from 1 to 2 per cent in the upper Eocene.

(To Be Continued)

[1] P. D. Trask, H. E. Hammar, and C. C. Wu, op. cit., p. 77; P. D. Trask and H. E. Hammar, op cit., p. 1360-1.

[2] P. D. Trask and H. E. Hammar, op. cit., 1362.

THE SPIRIT OF ACHIEVEMENT



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Co-operative Fuel Research Group Reports on 1934 Uniontown Tests

By C. B. VEAL*

In 1932 the C.F.R. road-test method was developed, and to secure correlation with ratings obtained by it modifications were made in the laboratory method, which had been evolved by the committee and has been since known as the "research" method. The resulting C.F.R. motor method was subsequently adopted by the American Society for Testing Materials as Tentative Method of Test for Knock Characteristics of Motor Fuels (A.S.T.M. designation D 357-33T).

The Co-operative Fuel Research Committee definitely recognized the possibility that the motor method would require revision from time to time as improvements in engine design and fuel characteristics outmoded its provisions; and, in adopting the method, provided for annual consideration of revision. Such consideration, in the fall of 1933, led to the appointment of a special committee to formulate a program; and, finally, after several meetings of the interested committees and constructive revisions of the original draft, a program was arrived at, and the detonation subcommittee was authorized to carry it out by action of the Co-operative Fuel Research Committee at its May 1, 1934, meeting.

General Purpose

The object of the 1934 C.F.R. detonation road tests, as stated in the approved program, was:

1. To check the validity of correlation between road knock ratings and laboratory knock ratings.

2. To indicate promising paths of research directed toward better mutual adaptation of fuels and engines.

Participants were to include any organization in the United States willing to share both the work and expense involved in providing cars, equipment, and supplies—together with representatives of foreign countries. Accordingly, invitations were extended to the companies in the oil, automotive, motor-truck, engine, and allied industries in this country, and to the Office National des Combustibles Liquides of France, to the Institution of Petroleum Technologists of Great Britain, and to the National Research Council of Canada.

A total of 25 organizations and 44 individuals participated in the 1934 C.F.R. detonation road tests—almost twice the number in the 1932 project. Organizations from three foreign countries are included in the list. Although other countries have previously co-operated by exchanging information and committee proceedings, this is the first time they have actively taken part in C.F.R. test work.

C. Bonnier, of the Station Nationale de Recherches et d'Experiences Techniques, was appointed as the official French representative. Mr. Bonnier was accompanied to Uniontown by N. Champsaur, air attache of the French Embassy. C. H. Sprake, of the Anglo-American Oil Co., Ltd., and R. Stansfield, of the Anglo-Persian Oil Co., Ltd., were the emissaries of the British organization; while A. L. Helliwell, of the Imperial Oil Co., Ltd., represented Canadian interests. The three last named actively co-operated in the carrying out of the entire test program.

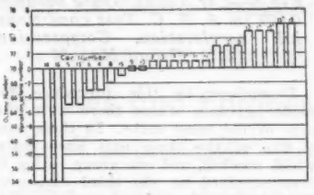


Fig. 2—Octane-number requirement of each car showing variations from 70.0 octane number

Materials and Equipment

American companies participating provided the fuel, cars and supplies; also they each contributed $100 to a fund from which were met the incidental expenses of one representative each of Yale University, the National Bureau of Standards, and the Society of Automotive Engineers, together with certain miscellaneous costs.

(a) Test fuels: The following fuels were used: 300 gallons each of eight branded fuels obtained from sales warehouses of the manufacturers, representative of the motor fuels sold throughout the country; and 250 gallons each of nine experimental or nonbranded fuels, chosen to represent different types of refinery products.

(b) Reference fuels: The reference fuels used were A-3 and C-8, supplied by the Standard Oil Development Co.

In rating fuels beyond the octane-number range of blends of these fuels, lead tetraethyl was added to C-8.

Descriptions of the nonbranded fuels are given in Table 1. Table 2 sets forth the inspection data on all the fuels.

TABLE 1—DESCRIPTION OF NONBRANDED FUELS

C.F.R. code	Uniontown code	
b-1	12	Cracked gasoline.
b-2	5	Cracked gasoline.
b-3	10	b-1 plus third-grade gasoline for 65 octane No.
b-4	8	b-2 plus third-grade gasoline for 65 octane No.
b-5	2	b-3 plus tetraethyl lead for 70 octane No.
b-6	9	b-4 plus tetraethyl lead for 70 octane No.
b-7	11	b-2 plus tetraethyl lead for 75 octane No.
b-8	7	Third-grade gasoline plus benzol for 70 octane No.
b-9	15	California straightrun gasoline.

In Table 3 are listed the 1934 cars used, including engine specifications. The selection of cars was based principally on sales volume. In view of the preponderance of the three low-priced cars, three of each of these cars were included to give weighting to the final road octane value. The Graham car was used to give results indicative of possible future developments in higher compression ratios and supercharging.

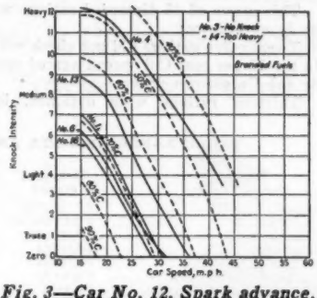


Fig. 3—Car No. 12. Spark advance, standard (11 deg. B. T. C.). Air temperature, 75.1. Test conditions, hill acceleration. Compression, (5.25). Barometric pressure, 28.86. Group No., average, 7, 19. Humidity, 70

Four of these cars are sold with optional cylinder heads. These heads were used to extend the octane-number requirement of these cars.

It was required that all test cars supplied by the participating companies be in normal mechanical condition, adjusted to factory settings; and that they have a minimum of 1,500 miles of operation since the last removal of combustion-chamber carbon.

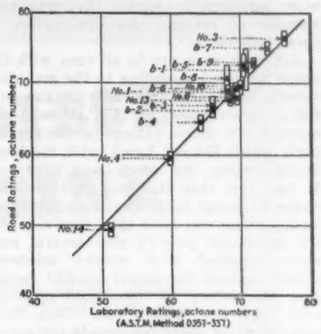


Fig. 1—Correlation between road and laboratory ratings

After consideration of several other possible locations for the road tests, the Uniontown Hill, near Uniontown, Pa., was again selected as the most suitable for the road-testing program.

Road-Test Procedure

As provided in the program, the C.F.R. road-test method adopted by the Co-operative Fuel Research Committee in 1932 was used as the basic procedure in conducting the tests.

In conformance with the basic intent of the program, knock ratings were obtained principally on the hill.

The identity of the branded fuels was concealed throughout the tests. The identity of the nonbranded fuels was revealed at the completion of specific portions of the program, but the fuels were re-coded for the remainder of the tests.

The test fuels were bracketed between increments of 10 per cent blends of A-3 and C-8.

The personnel assigned to road work consisted of groups of two observers and a driver—except in the case of two coupes, in which only one observer did the rating.

When the two observers in a given car had obtained ratings in substantial agreement on all fuels, a second group was sent out to check the ratings of the first group. If the second group did not check the results of the first group within 10 per cent C-8, subsequent groups were sent out until agreement was obtained.

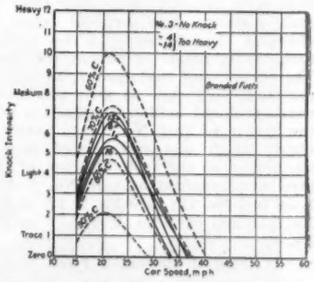


Fig. 4—Car No. 15. Spark advance, (0 deg.). Air temperature, 71.5. Test conditions, hill acceleration. Compression, 6.5. Barometric pressure, 28, 73. Group No., average, 13, 16. Humidity, 76

In carrying out the provisions of the road-test procedure certain expedients

TABLE 2—INSPECTION DATA ON BRANDED AND NONBRANDED FUELS

Fuel—	Gravity (deg. A.P.I.)	A.S.T.M. distillation (deg. F.) Initial boiling point	10	20	30	40	50	60	70	80	90	Maximum	Loss (per cent)	Recovery (per cent)	Reid vapor pressure (pounds)
1	60.2	96	136	164	192	220	242	267	290	318	357	408	2.2	96.7	9.2
3	57.8	102	149	179	206	232	254	277	299	324	363	396	1.5	97.5	7.2
4	61.0	103	151	180	202	223	242	262	284	309	340	386	1.7	97.3	7.5
6	60.9	96	140	173	202	226	246	268	292	318	354	402	2.4	96.7	8.8
13	61.4	105	145	168	184	212	232	260	284	316	354	398	1.2	97.8	7.9
14	60.3	102	152	190	221	246	268	290	311	332	354	390	1.7	97.3	7.1
16	59.2	100	146	180	210	234	254	276	296	320	352	412	1.7	97.2	7.5
b-1	54.6	96	137	168	198	229	260	290	316	345	370	398	1.8	97.2	8.7
b-2	57.7	97	142	174	212	240	265	290	314	342	372	408	2.0	97.0	8.2
b-3	57.4	97	141	174	205	235	262	288	314	338	364	395	1.8	97.2	8.2
b-4	57.6	100	146	184	216	244	267	291	315	340	368	408	1.7	97.3	7.4
b-5	57.2	98	142	176	208	236	264	290	314	340	364	394	2.0	97.0	8.1
b-6	57.6	100	147	183	216	242	267	291	314	340	370	406	1.6	97.3	7.6
b-7	57.0	98	146	182	213	242	266	290	315	341	370	409	1.8	97.2	8.0
b-8	46.4	126	166	176	183	189	196	209	238	298	338	381	1.0	97.9	6.0
b-9	57.4	100	149	182	208	228	244	262	283	310	351	415	1.9	97.1	7.6
A-3	62.8	146	191	210	224	236	246	258	271	285	306	368	1.0	98.0	3.5
C-8	63.9	124	160	170	178	185	192	201	212	227	257	328	1.1	98.0	5.9

*Society of Automotive Engineers, New York; secretary, Co-operative Fuel Research Committee.

Presented at Dallas meeting of A.P.I. Author's title: "The 1934 Detonation Road Tests."

were adopted to secure the maximum number of ratings. An explanation of these follows.

All fuels were run in all cars with the spark adjusted according to the manufacturer's basic setting, which is the preferred practice of the C.F.R. road-test method. To obtain ratings on the several fuels which did not knock with the basic spark setting, the spark was advanced. It was felt that this was justified, because in many cases the manufacturer's basic setting was later than that required for maximum power; also several cars were supplied with octane selectors, which enabled the driver readily to adjust his setting for maximum performance with the fuel in use. Thus these cars, when in operation, would not necessarily be operated at the manufacturer's basic setting.

Fuels No. 3, 11 and 12 did not knock in several of the cars, unless the spark was advanced beyond the position for maximum power. To obtain a more nearly representative rating on these fuels,

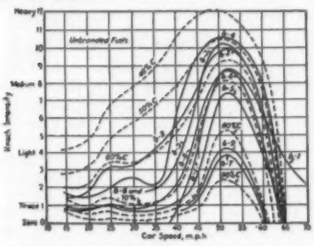


Fig. 5—Car No. 19. Spark advance, standard (9 deg. B. T. C.). Air temperature, 71.1. Test conditions, hill acceleration. Compression, standard (6.25). Barometric pressure, 28.75. Group No., 10, 21 and 24. Humidity, 74

it was deemed desirable to bring these fuels within the knocking range of the cars rather than advance the spark beyond the position for maximum power. This was accomplished by blending the fuels with fuel No. 14 to lower their octane numbers. Realizing the danger of changing the character of the original fuel, the minimum of diluent was used. The blends used contained 7, 14 and 25 per cent of diluent. At least two blends were rated and used in conjunction with the rating of fuel No. 14 to obtain a curve, which was extrapolated to give the rating of the fuel. Ratings of this type were obtained on cars No. 2, 4, 8, 9, on fuel No. 12; cars No. 2, 11, on fuel No. 11; and cars No. 2, 4, 11′, on fuel No. 3.

Special Reference Fuels

Since reference fuel C-8 (see Table 2) is more volatile than the conventional fuels, the effect on detonation ratings of this difference in distillation characteristic was investigated. Fuel b-9, a California straightrun naphtha, having a conventional distillation and an octane-number rating of 72, was used for this purpose.

A direct comparison between the knocking characteristic of fuel b-9, the other test fuels, and blends of reference fuels C-8 and A-3 was obtained in all but five cars. To obtain this comparison in the five cars in which fuel b-9 did not knock, fuel b-9 was blended with A-3 in proportions of 40 and 15 per cent of the latter (fuel designation R-1 and fuel designation R-2, respectively, see Table 10). The results obtained with these blends were then compared directly with those of reference fuels and test fuels b-3 and b-4; and a blend of 25 per cent benzol, 25 per cent C-8, and 50 per cent A-3 (fuel designation R-3, see Table 6). This last blend was run at the request of the representatives of the Institution of Petroleum Technologists.

Results

The laboratory ratings were obtained by the present C.F.R. motor method (A.S.T.M. designation D-357-33T). Ratings were made immediately preceding the road work by the C.F.R. Monthly Exchange Group, consisting of 19 laboratories. The average value for each fuel was then ascertained.

Immediately following the road tests, a second set of samples of the original fuels used at Uniontown was shipped from a central laboratory to the exchange group, with the exception of one laboratory which was omitted and two which were added to the list. The average values from these tests were then ascertained, and the mean of these two separate determinations used as the octane rating of the fuel. These ratings are shown in Table 4. Seven of the laboratories also rated the first set of samples by the research method, the average of the results obtained being given in Table 4.

The road ratings of the fuels which were obtained from the hill tests are shown in Table 4.

The following method was used in obtaining the ratings:

1. Ratings were obtained by at least two groups, as previously described.

2. Two group ratings were then averaged to obtain a car rating, provided they checked within 10 per cent of C-8 in A-3. When these two group ratings did not check, additional groups were sent out in an attempt to reach agreement. In six cases ratings outside the 10 per cent of C-8 range were used in computing the average provided that three or more ratings were obtained which, although differing by 5 to 10 per cent of C-8 among themselves, were all within a range of 15 per cent of C-8. If no satisfactory agreement was reached, the ratings were discarded. Forty-five group ratings, out of a total of 653 (less than 7 per cent) were discarded.

This group of 45 discarded ratings was made as follows:

Twenty-five ratings did not check within the 10 per cent C-8 spread agreed upon by the Uniontown group.

Thirteen ratings were obtained, but subsequent groups were unable to check these values due to changes in the octane requirements of the cars brought about by weather conditions. An illustration of this is given under octane requirements of cars.

Six ratings were obtained in car No. 12 with abnormal spark settings which were not considered representative of normal road operation and, consequently, discarded even though they were not out of line with ratings obtained with normal spark settings.

One rating was discarded due to question of its validity by the observers.

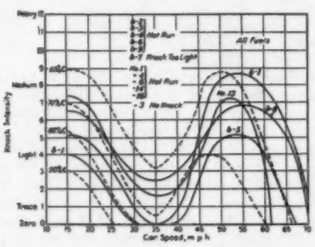


Fig. 6—Car No. 11. Spark advance, 0.007 in. A. T. C. Test conditions, hill acceleration. Compression, (6.5). Group No., 16

Exceptions to this procedure were made in cases where there were three cars of the same make. In these cases, if two of the three cars gave ratings which checked, and one group rating had been obtained on the third car, which also checked the other two car ratings, that rating was considered as the rating of the third car.

3. The car ratings listed in Table 4 were averaged to give the road rating of the fuel.

When more than one cylinder head was used on any car, the ratings obtained with the various heads were still considered as having been made with a single car—regardless of whether they were obtained using one, two or three heads. This accounts for some of the blanks shown in the table.

Since it was not practicable to rate all fuels in all cars, the group voted that a minimum of 15 car ratings would constitute a fuel rating. Because of the low octane number of fuel No. 14 and the low octane requpirements of cars No. 14 and 16, it was further decided not to attempt to obtain ratings in the majority of cases involving the use of this fuel and these cars.

The fact that the two cars mentioned were included in some of the fuel averages does not materially alter these values; for, by excluding cars No. 14 and 16, a maximum change of +2 per cent C-8 in A-3 would occur with fuel No. 14, while the other averages would be changed by less than 0.5 per cent C-8.

These three factors, viz., optional heads, the partial elimination of fuel No. 14, and cars No. 14 and 16, account for 84 per cent of the blanks in the table. The ratings obtained at settings other than the manufacturer's basic setting were segregated, and some fuels were run at both settings to determine the effect of spark advance on the ratings. A comparison of these results shows that, within the accuracy of the tests, there is no significant difference between the two ratings. In no case, with the single exception of one make of car, were ratings used which were obtained with spark setting beyond position for maximum power.

Table 5 shows the average variation of the detonation-meter ratings from the average hill ratings. The limited amount of work done with the detonation meter was not sufficient to be conclusive. It did indicate, however, that the use of an electric meter was promising enough to merit further investigation and development; it is, therefore, being studied further by the committee.

TABLE 5—AVERAGE VARIATION OF DETONATION-METER READINGS FROM AVERAGE HILL RATINGS

Car No.		(Per cent C-8)
8	Rated fuels 3, 11, 12 as well as primes giving average variation	—5
12	Rated fuel 9 giving average variation	0
6	Rated fuel 12 giving average variation	+7
5	Rated fuels 3, 6, 7, 10, 12 giving average variation	+1
11′	Rated fuels 3, 5, 7, 11, 12 giving average variation	—4

Overall variation (all cars, all fuels rated) —2 per cent C-8 from hill rating with natural car.

The ratings shown for fuel b-9 in Table 4 show no significant variations from car to car, nor between car and laboratory ratings. Therefore, either fuel b-9 or fuel C-8 might equally well have been used as reference fuel. Since these two fuels differed markedly in volatility, it follows that the effect of reference-fuel volatility on ratings is negligible in so far as these particular reference fuels are concerned.

A summary of the results obtained, using other special reference fuels, is shown in Table 6.

TABLE 6—REFERENCE-FUEL RATINGS

Car. No.	PER CENT C-8 IN A-3 — Fuel designation R-1	R-2	R-3	b-3	b-4
5	54	..	..	..	57
9	55	..	..	..	..
10	51	72	66	71	57
15	49	..	61	..	59
18′	..	73	67	58	52

Correlation

The first objective of the 1934 detonation road tests was to check the validity of correlation between road knock ratings and laboratory knock ratings by the C.F.R. motor method (A.S.T.M. designation D 357-33T).

Table 4 gives a comparison of the hill-road ratings of the test fuels with the laboratory ratings obtained by the A.S.T.M. and research methods. The maximum variations from the A.S.T.M. method, which occurred in the cases of

TABLE 3—ENGINE DATA AND SPECIFICATIONS OF TEST CARS

Car—	Bore and stroke	Displacement	Cylinder-head type and material	Compression ratio	Standard spark setting
Buick	3 3/32x4¾	278.1	I—C.I.	5.25	11 deg. B.T.C.
Cadillac	3⅜x4 15/16	353.0	L—C.I.	6.25	9 deg. B.T.C.
Chevrolet	3 5/16x4	206.8	I—C.I.	5.45	10 deg. B.T.C.
Chevrolet	3 5/16x4	206.8	I—C.I.	5.45	10 deg. B.T.C.
Chevrolet	3 5/16x4	206.8	I—C.I.	5.45	10 deg. B.T.C.
Chrysler	3¼x4½	298.6	L—AL	6.5	6 deg. A.T.C.
Dodge	3¼x4¾	217.8	L—C.I.	5.5	2 deg. A.T.C.
Dodge	3¼x4¾	217.8	L—AL	6.5	4 deg. A.T.C.
Ford	3 1/16x3¾	220.0	L—AL	6.33	4 deg. B.T.C.
Ford	3 1/16x3¾	220.0	L—AL	6.33	4 deg. B.T.C.
Ford	3 1/16x3¾	220.0	L—AL	6.33	4 deg. B.T.C.
Graham	3¼x4	265.4	L—AL	6.72	3 deg. B.T.C.
Oldsmobile	3x4¼	240.3	L—C.I.	5.7	4 deg. B.T.C.
Packard	3 3/16x5	320.0	L—C.I.	6.0	11 deg. B.T.C.
Packard	3 3/16x5	320.0	L—C.I.	6.58	7 deg. B.T.C.
Plymouth	3⅛x4⅝	201.3	L—C.I.	5.8	9 deg. B.T.C.
Plymouth	3⅛x4⅝	201.3	L—AL	6.5	6 deg. B.T.C.
Plymouth	3⅛x4⅝	201.3	L—C.I.	5.8	3 deg. A.T.C.
Plymouth	3⅛x4⅝	201.3	L—C.I.	5.8	3 deg. A.T.C.
Pontiac	3 3/16x3½	223.4	L—C.I.	6.3	7 deg. B.T.C.
Studebaker	3½x4⅛	205.3	L—AL	6.3	T.D.C.
Terraplane	3x5	212.1	L—C.I.	5.8	12 deg. B.T.C.
Terraplane	3x5	212.1	L—AL	6.3	12 deg. B.T.C.
Terraplane	3x5	212.1	L—AL	7.0	12 deg. B.T.C.

TABLE 4—HILL RATINGS

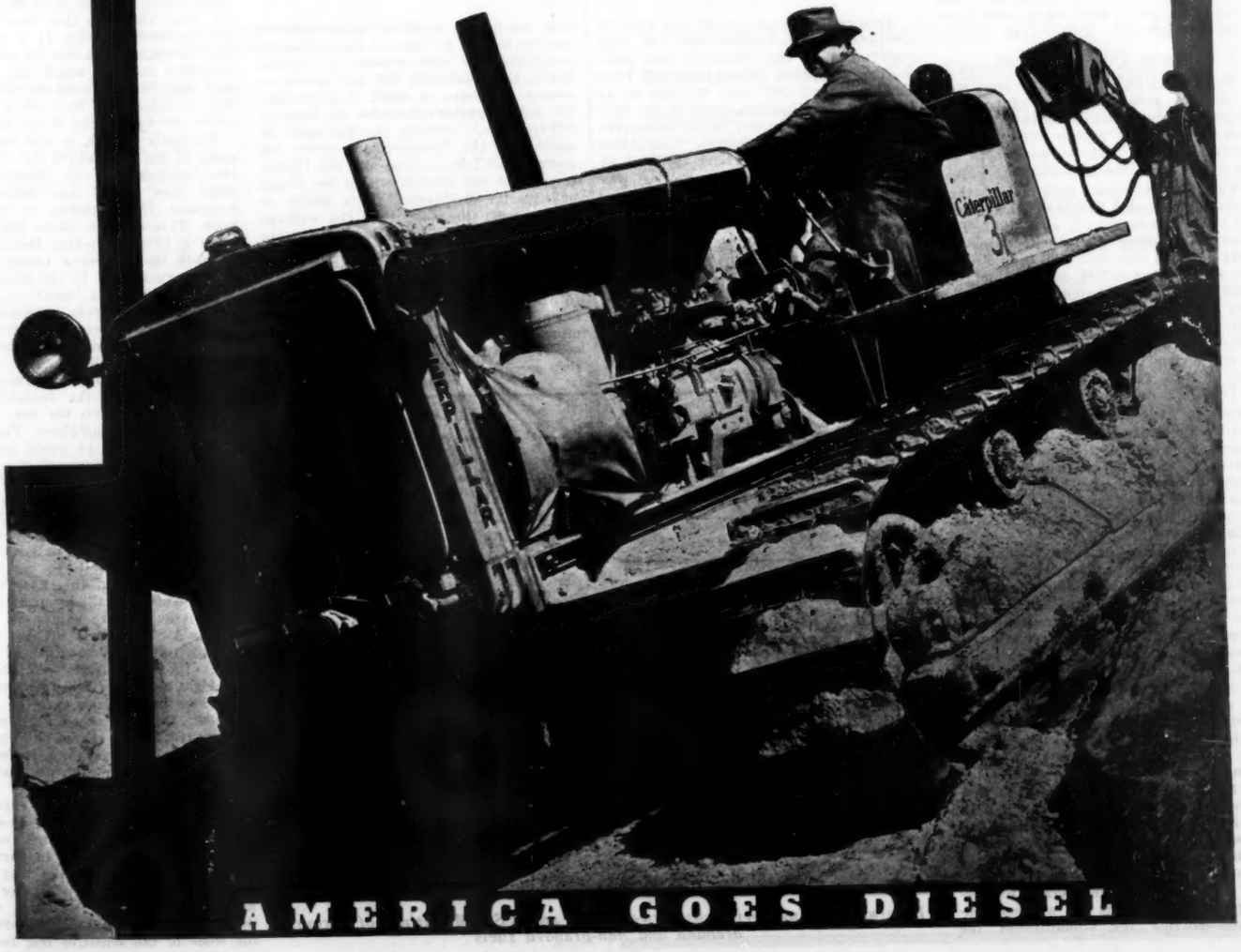
Car numbers—	BRANDED FUELS Uniontown code 1	3	4	6	13	14	16	NONBRANDED FUELS Uniontown code 12	5	10	8	2	9	11	7	15
								C.F.R. code b-1	b-2	b-3	b-4	b-5	1-6	b-7	b-8	b-9
1	76	98	44	68	73	15	82	94	70	66	66	85	73	95	71	87
2	78	103	47	72	71	20	79	98	69	69	61	89	78	100	87	87
3	78	98	46	73	73	19	79	90	68	73	63	86	76	92	89	88
4	77	105	51	70	78	20	88	101	70	79	57	97	83	..	..	95
5	80	98	48	75	70	17	80	97	75	79	68	93	81	97	97	88
6	78	100	45	70	67	..	73	73	68	72	62	94	74	97	99	90
7	67	..	55	67	69	..	73	64	67	57	56	76	72	..	76	..
7′	68	99	48	69	69	..	68	72	65	65	58	81	71	86	72	89
Average, 7 and 7′	68	99	52	68	69	..	73	68	66	61	57	78	72	86	74	89
8	68	..	47	73	70	..	77	73	64	62	54	..	77	..	76	..
9	76	..	50	70	70	21	77	85	66	65	61	..	73	..	..	..
10	73	95	47	70	68	..	70	93	69	69	60	87	73	93	79	89
11	73	..	43	73	73	21	77	..	70	74	63	78	78	..	79	82
11′	76	106	43	76	..	..	77	79	77	70	68	82	78	102	63	83
Average, 11 and 11′	75	106	43	75	73	21	77	79	74	72	66	80	78	102	74	82
12	69	..	49	72	64	..	72	..	65	63	57	80	72	90	77	86
13	..	..	44	..	..	..	..	..	..	..	..	..	..	..	..	..
13′	73	..	40	68	68	..	76	..	66	68	60	79	76	..	76	83
13″	..	99	..	..	..	..	..	90	..	..	..	82	..	97	..	87
Average, 13, 13′ and 13″	73	99	42	68	68	..	76	90	66	68	60	81	75	97	76	85
14	..	..	48	..	..	14	..	..	..	..	..	..	..	..	..	..
15	76	101	41	72	70	..	78	92	67	69	63	87	77	93	79	87
16	73	..	48	73	77	9	..	..	70	..	61	..	..	..	76	..
17	77	97	..	72	68	..	77	..	66	75	67	90	76	95	..	87
18	73	86	47	..	..	..	72	..	56	65	56	90	70	..	..	..
18′	..	90	..	64	61	..	70	69	..	..	..	80	63	90	79	..
Average, 18 and 18′	73	88	47	64	61	..	71	69	56	65	55	85	67	90	79	..
19	68	90	39	71	66	..	70	65	54	53	50	73	71	85	65	84
Number of car ratings	18	14	18	18	18	9	17	15	18	17	18	15	17	14	15	14
Hill ave. per cent C-8	74	93	46	71	70	17	76	84	67	68	61	86	75	94	80	27
Hill equiv. Oct. No.	68.9	76.5	59.5	67.9	67.6	49.4	69.5	72.1	66.6	66.8	64.5	72.7	69.2	75.1	70.8	73.0
C.F.R. Motor, Oct. No.	68.2	76.2	59.8	69.5	68.7	51.3	70.0	70.8	65.9	65.9	64.1	70.6	69.3	74.0	68.1	72.0
C.F.R. Res., Oct. No.	71.0	79.9	69.4	71.3	70.7	51.0	71.6	79.9	70.3	70.2	67.6	74.9	71.7	78.8	72.5	73.0

Prime = High-compression head. Low-compression and high-compression ratings averaged to give car rating.

"THE 'CATERPILLAR' DIESEL IS THE GREATEST ENGINE I'VE EVER SEEN"

—SAYS ONE OWNER, WHO ADDS: "I HAVE WORKED WITH MANY ENGINES SINCE 1920 AND THE DIESEL TRACTOR IS BEYOND A DOUBT THE BEST OF ALL."

"No expense, no delay"—"Fuel costs below our expectations or even hopes"—"Not a minute's time lost"—"Lots of power, and the smoothest we've ever known"—"Simpler than a gas tractor, and better in every way." . . . These are typical expressions from owners of "Caterpillar" Diesel Tractors and Engines. Some of them bought on confidence in "Caterpillar" superiority—some on study of "Caterpillar" design and construction—now they have the proof of performance. Let us tell you why the "Caterpillar" Diesel is the surest, safest investment in power equipment. Caterpillar Tractor Co., Peoria, Illinois, U. S. A.



fuels No. b-8 and 14, are +2.7 and —1.9 octane numbers, respectively; and the algebraic average variation for all fuels is +0.36 octane number. The degree of correlation between ratings by the A.S.T.M. method and hill-road ratings is shown in Figure 1. In this it will be noted that the 45-degree line illustrates perfect correlation. The points are the average road ratings for each test fuel as given in Table 4, and the height of the vertical rectangles represents the average spread of the road ratings. These spreads illustrate the difficulty involved in attempting to develop a laboratory method which will give better correlation until they can be reduced. Analysis

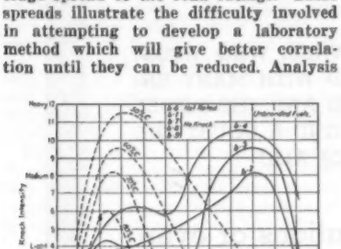


Fig. 7—Car No. 4. Spark advance, 11 deg. B. T. C. Test conditions, hill acceleration. Compression, standard. Group No., 16

of the data mathematically or graphically, as in Figure 1, indicates that the correlation between the present A.S.T.M. method and the Uniontown road-test data is within the limits of experimental error of the technique employed. However, it is apparent from the data that the precision and reproducibility of both the road and laboratory method are not as good as could be desired, and it is not likely that better correlation than has been found in these tests can be achieved until improvements in precision have been developed. Active work along these lines is in progress.

Better Fuel Adaptation

The second objective of the tests was to indicate promising paths of research directed toward better mutual adaptation of fuels and engines, and requires further analysis and research, both on the road and in the laboratory.

The 1934 Uniontown tests indicate that engine-detonation characteristics have not changed substantially since 1932. The average variation for all fuels in the 1934 hill-road tests is +0.36 octane number above the A.S.T.M. method, and the 1932 tests also showed a positive variation of 0.18 octane number. The average variation of the hill-road test results for all fuels from the C.F.R. research method was —3.12 octane numbers in 1934, and —3.55 octane numbers in 1932.

Certain fuels appear to be more susceptible to changes in engine characteristics than others, and engines vary considerably from one another—both with respect to octane-number requirement and with respect to the tendency to rate sensitive fuels above or below the A.S.T.M. rating.

Figure 2 shows the average octane requirement of the Uniontown test cars and the extent to which individual car requirements are above and below 70 octane number. This chart is based on a trace knock intensity obtained with reference fuels A-3 and C-8. Such stable fuels as mixtures of A-3 and C-8 (and not a sensitive fuel) should be used for the direct determination of the octane-number requirements of cars; because, as stated above, some cars as individuals rate sensitive fuels above the average rating, and other cars rate them below the average. If a sensitive fuel be employed for determining the octane-number requirement of a car, the result obtained would embody whatever degree of deviation that might be characteristic of that fuel in that particular car.

A factor affecting the octane requirements of the cars was the weather conditions—notably the humidity—at the time of determination. As an illustration of the effect of this factor on knocking tendency, car No. 1 gave a trace knock with 90 per cent C-8 in A-3 on a day when the relative humidity was 90 per cent, while on another day the same car and same fuel gave a heavy minus knock with 64 per cent relative humidity under similar temperature conditions.

The Uniontown data clearly indicate that different cars may have a wide variety of knock-speed characteristics. The cars may be classified as follows, according to knock-speed characteristics, as illustrated in Figures 3 to 7, inclusive:

(a) Cars in which the reference fuels and test fuels have their maximum knock intensities occurring at low speeds (see Figure 3).

(b) Cars in which both the reference and test fuels have their maximum knock intensities occurring at intermediate speeds (see Figure 4).

(c) Cars in which both the reference and test fuels have their maximum knock intensities occurring at high speeds (see Figure 5).

(d) Cars in which the knock intensities of both the reference fuels and test fuels peak at two speeds (see Figure 6).

(e) Cars in which the maximum knock intensity of the reference fuels occurs at low speeds, while the knock intensity of some of the test fuels peak at high speeds or both high and low speeds (see Figure 7).

To obtain an explanation of the peculiarities in engine and fuel behavior mentioned above, the effect of certain factors and their inter-relation might well be investigated. Some of these factors, as suggested by experience and by analysis of the Uniontown results, are the following: The octane-number requirement of the car and shape of the knock curve, the car speed at which the maximum knock occurs, the intensity of the knock at which ratings are made, the magnitude of the experimental error in making individual determinations, the temperature of the mixture, and the character of the road-testing technique and of the laboratory knock-rating procedure.

A more complete analysis of the Uniontown data to obtain further insight into the knocking characteristics of fuels in engines is being made, and will be presented at the coming annual meeting of the Society of Automotive Engineers. An investigation of the effect of mixture temperature on the laboratory ratings of the Uniontown fuels is also in progress at the present time. It is hoped that the Co-operative Fuel Research Committee may be enabled to continue its investigations into other factors affecting detonation—to the end that, in clarifying the issues surrounding the quality of motor fuels, it may advance further on the path of adapting fuels to engines, and engines to fuels, on which it has made so notable progress.

A.S.T.M. and Road Test Results Differ Beyond Experimental Error

By K. G. MACKENZIE
The Texas Co.*

This paper reports one of the greatest co-operative tests which has yet been undertaken by the petroleum and automotive industries. Lessons learned from the 1932 road test were applied, so as to reduce, or eliminate, many of the controversial details which arose during the evolution of the original "Uniontown procedure." The co-operative spirit of all those engaged in the test routine was noteworthy and commendable. Those responsible for directing such a large program, with so many diverse interests at stake, are certainly to be congratulated.

Because of the truly international aspects of this test, the report which has just been presented will naturally have world-wide interest. It is for this reason that we feel it would be unfortunate if anyone should be able to read into the conclusions of this report, a meaning which the committee did not intend to convey. We have in mind, in particular, the second paragraph under the heading "Correlation," wherein the statement is made that the "correlation between the present A.S.T.M. method and the Uniontown road test data is within the limits of experimental error." This seems to follow from the fact that the average road value for all fuels tested was only 0.36 octane units higher than the average A.S.T.M. values for the same fuels. It is important in work of this nature to bear in mind that if several large plus deviations happen to equal several large minus deviations, so that they cancel each other, we still lack evidence of satisfactory correlation. For instance: We show below the deviations between Hill and A.S.T.M. ratings for individual test fuels where the deviation is one octane unit or more:

Fuel No.	A.S.T.M. deviation from Hill rating	Remarks—
b-8	—2.7	Benzol blend
b-5	—2.1	Leaded
b-1	—1.3	Cracked
b-7	—1.1	Leaded
b-9	—1.0	Calif. straightrun
13	+1.1	Branded fuel
6	+1.6	Branded fuel
14	+1.9	Branded fuel

These deviations are certainly greater than experimental error, for the errors of observation tend to be compensating, and after averaging the results of readings by two different groups of two observers each, taken on at least 15 cars, it does not seem likely that the error could be greater than 0.5 octane unit. Thus, the deviations shown above are certainly significant, especially since they include one-half of the fuels tested.

A car manufacturer may be satisfied to know the performance of an average fuel in his car, and might thus be satisfied to know that the average deviation is less than the observational error; but the situation is entirely different for an oil refiner who is trying to gauge his gasoline to average car requirements. The committee has already been informed that the German motor fuel interests are not willing to accept the A.S.T.M. method without the privilege of adding from 1 to 3 octane units to the actual readings for fuels containing considerable benzol. Other motor fuel interests also feel that the deviations indicated above cause an unwarranted handicap when marketing a gasoline which is intended to meet a certain standard of performance in cars on the road.

A clearer picture of the deviations between Hill and A.S.T.M. values for all fuels tested is given by the accompanying figure. It will be seen that the deviations below the line tend to compensate for those above, so that their average is not far from the line. It is also evident that the bars which are not cross-hatched represent fuels in which the correlation may well be considered satisfactory; but the cross-hatched bars show fuels for which the correlation is not satisfactory.

Strangely enough, it will be seen that most of the bars above the line are for the "nonbranded" or "research" fuels, while most of the bars below the line represent the branded, or commercial, fuels. This division seems extraordinary when it is realized that the nonbranded research fuels cover a range of composition very similar to the branded fuels. Another surprising point is that the straightrun California gasoline indicated a deviation of 1 octane number, since it is generally believed that straightrun fuels are practically immune to engine conditions and should show the same relative standing with the straightrun reference fuels, either on the road or under any test engine conditions. The low octane value of Fuel 14 would seem to put it in this same category also, except that it was rated in less than half the test cars, and should be thrown out by a strict interpretation of the committee's rules which required ratings on about 80 per cent, or 15 cars, at least.

In closing we wish to call attention to one more point, this time in regard to the "depreciation" shown for each car, between the average values for all fuels and the A.S.T.M. method. Nine makes of the cars tested, representing 76 per cent of all 1934 cars registered during the first eight months of this year gave higher ratings to the test fuels than the A.S.T.M. method; and the other four makes of cars tested, which represent only 20 per cent of this registration, gave lower ratings. Of this 20 per cent, one make alone represented 17 per cent.

In conclusion we wish to express our appreciation of the very fine co-operative work covered by this report, to congratulate all who have aided in carrying it out, and to voice the belief that it may become a valuable step in securing a method of rating fuels which will reduce the rather wide deviations noted for some of the sensitive test fuels.

*A discussion of paper on Uniontown road test presented at Dallas meeting of A.P.I., November 14.

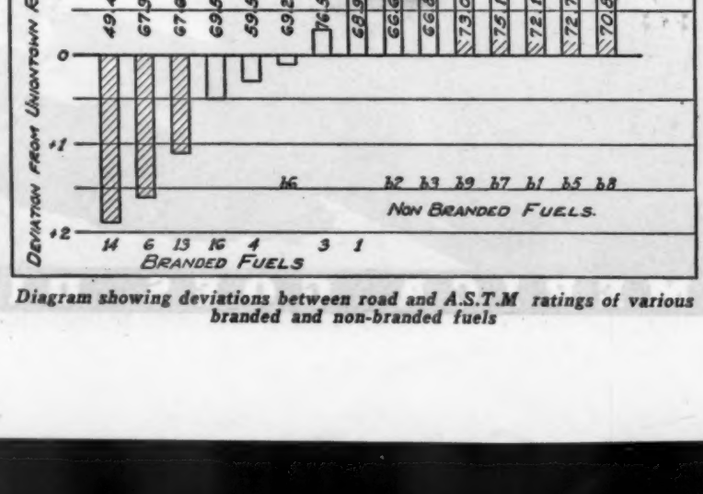


Diagram showing deviations between road and A.S.T.M ratings of various branded and non-branded fuels

Discussion of Laboratory and Road Test Correlation in Uniontown Runs

By C. B. WAGNER
Pure Oil Co.*

The report of the Co-operative Fuel Research Committee made by Mr. Veal, with one or two exceptions, is an excellent resume of the work done at Uniontown this past summer. Had the report omitted conclusions and confined itself strictly to a statement of the facts and data collected, nothing but praise could be said at this time concerning the report. In view of the fact, however, that the committee has seen fit to override the wishes of a minority, and include in the report—contrary to a previous mutual agreement—conclusions purporting to show substantial agreement between the present A.S.T.M. method (D 357-33T) and the road tests conducted at Uniontown, it is felt necessary to point out certain facts which indicate that the committee's action is premature, not to say misleading.

The report states that "the algebraic average variation for all fuels is plus 0.36 octane number." This statement on its face would appear to indicate that very good correlation with the results of the laboratory tests had been obtained in the road tests conducted at Uniontown on these same fuels. The report further states "analysis of the data mathematically or graphically, as in Figure 1, indicates that the correlation between the present A.S.T.M. method and the Uniontown road test data is within the limits of experimental error of the technic employed."

In the first place, many of the data obtained show very marked deviations from average correlation as determined by the committee, and these data have not been examined and sifted according to the critical methods agreed upon by the Co-operative Fuel Research Committee at the time when the Uniontown Hill tests were authorized. Such a critical examination presented would necessitate the throwing out of numerous determinations, or the expenditure of more time and effort in the proceurement of additional data by the use of cars of the same make and model as were used in obtaining the questionable data. Inconsistently enough, the committee has elected arbitrarily to throw out certain other determinations indicating high road ratings for certain fuels because the ratings were not checked closely enough. It might also be pointed out in this connection that car No. 12, which was an excellent car from the standpoint of making road test ratings, was removed from Uniontown early in the test work and was not returned in spite of repeated requests and in spite of the fact that its use was required to check some of the data which have been thrown out by the committee in its summation of the results. In this same connection, it should also be pointed out that fuel No. 14 has been given a rating which is obviously incorrect, since its A.ST.M. octane number and its research octane number agree very closely with each other, but are almost two whole octane numbers higher than the road rating given. A further objection to

(Continued on Page 64)

*Discussion of the C.F.R. report made at the Dallas meeting of the A.P.I.

TABLE 1—UNIONTOWN ROAD TEST FUELS
Hill Ratings Re-evaluated by Pure Oil Co.

	BRANDED FUELS							NONBRANDED FUELS								
	Uniontown code							Uniontown code								
								12	5	10	8	2	9	11	7	15
Car numbers—	1	3	4	6	13	14	16	C.F.R. code b-1	b-2	b-3	b-4	b-5	b-6	b-7	b-8	b-9
1	76	98	43	70	73	15	82	94	71	60	66	85	74	96	73	87
2	78	104	48	72	71	20	..	101	67	70	63	89	78	87	87	87
3	77	98	47	73	72	22	81	90	68	73	62	86	75	94	88	89
4	78	105	50	70	73	20	90	101	76	70	65	97	83	100	100	94
5	80	91	47	75	70	17	80	95	74	79	62	93	80	96	98	88
6	74	100	46	70	67	..	73	82	68	72	63	94	74	97	98	90
7	68	95	50	67	68	..	77	72	68	68	56	80	70	76	77	90
7′	68	102	48	69	69	30	68	78	65	65	58	84	72	86	69	88
Ave., 7 and 7′	68	99	49	68	69	..	73	75	67	67	57	82	71	81	73	89
8	68	..	47	76	71	..	78	78	64	62	54	..	74	..	75	..
9	76	98	50	70	70	19	78	81	63	65	61	..	73	..	85	..
10	73	95	47	69	68	..	70	93	71	69	59	85	79	92	79	88
11	75	100	42	76	74	21	77	98	74	76	62	76	79	98	81	73
11′	76	108	43	76	73	..	84	76	73	70	68	81	78	..	75	86
Ave., 11 and 11′	76	..	43	76	74	..	81	82	74	73	65	79	79	98	78	79
12	69	97	49	72	63	..	70	97	64	67	59	81	72	90	76	85
13	..	..	43	..	..	20	..	..	..	..	..	..	..	..	..	..
13′	73	90	40	68	68	..	76	90	66	68	59	79	75	90	76	83
13″	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ave., 13, 13′, 13″	73	90	42	68	68	..	76	90	66	68	59	79	75	90	76	80
14	..	..	48	..	..	13	..	..	..	..	67	..	..	..	..	..
15	77	101	42	70	70	..	78	97	69	68	65	87	77	93	79	87
16	73	..	48	73	77	9	80	..	72	76	61	..	80	..	78	..
17	77	96	..	72	68	..	76	95	68	73	63	89	75	95	93	86
18	72	86	47	66	63	..	74	79	56	65	55	90	72	..	80	90
18′	..	90	..	63	61	..	70	79	..	..	..	81	63	94	86	93
Ave., 18 and 18′	72	88	47	65	62	..	72	79	56	65	55	86	68	94	83	92
19	68	90	40	71	66	19	70	85	54	52	49	73	71	85	64	84
No. cars rated	18	16	18	18	18	12	17	17	18	18	19	15	18	15	18	15
Ave. per cent C-8	74	97	46	71	70	19	78	90	67	69	61	86	76	93	80	87
Equiv. Oct. No.	69.0	76.5	59.4	67.9	67.6	50.0	70.2	73.8	66.6	67.2	64.5	72.7	68.5	74.9	70.8	73.0
C.F.R. Motor Oc., No.*	68.2	76.2	59.8	69.5	68.7	51.3	70.0	70.8	65.9	65.9	64.1	70.6	69.3	74.0	68.1	72.0

*Average octane number of laboratory tests made before and after Uniontown tests.

TABLE 2—THE PURE OIL CO. SUMMARY OF DATA ON UNIONTOWN HILL RATINGS

Fuels, Union.own code	A Octane No. reported by committee	B Octane No. as re-evaluated by the Pure Oil Co.	C Difference between A and B (Column A used as reference)	D Average A.S.T.M. octane No. of lab. tests made before and after Uniontown tests	E Difference between B and D (Column D used as reference)
1	68.9	69.0	+0.1	68.2	+0.8
3	76.5	76.5	0.0	76.2	+0.3
4	59.5	59.4	—0.1	59.8	—0.4
6	67.9	67.9	0.0	69.5	—1.6
13	67.6	67.6	0.0	68.7	—1.1
14	49.4	50.0	+0.6	51.3	—1.3
16	69.5	70.2	+0.7	70.0	+0.2
12 (b-1)	72.1	73.8	+0.9	70.8	+3.0
5 (b-2)	66.6	66.6	0.0	65.9	+0.7
10 (b-3)	66.8	67.2	+0.4	65.9	+1.3
8 (b-4)	64.5	64.5	0.0	64.1	+0.4
2 (b-5)	72.7	72.7	—0.0	70.6	+2.1
9 (b-6)	69.2	69.5	+0.3	69.3	+0.2
11 (b-7)	75.1	74.9	—0.2	74.0	+0.9
7 (b-8)	70.8	70.8	0.0	68.1	+2.7
15 (b-9)	73.0	73.0	0.0	72.0	+1.0
16 fuels		Algebraic sum	+2.7	Algebraic sum	+9.2
		Ave. deviation	+0.17	Ave. deviation	+0.58 octane

You can't afford not to

If your refining operation is big enough to be worth while you can't afford not to crack. There is too much straight-run gasoline now. The market for it is shrinking—and the price is sinking.

And cracking won't be too costly if your cracking unit is designed in proportion to your throughput.

Parsons designs and builds special cracking units exactly suited to the peculiar needs of the individual small refiner—and always mindful of his pocketbook.

Parsons-built units operate the Dubbs process under Universal license and fully protected by Universal patents. They are guaranteed by Universal as well as by Parsons.

Ask Parsons what he can do for you.

It will cost you nothing to find out.

PARSONS

THE RALPH M. PARSONS CO.
MT. VERNON, OHIO

Chicago Area Tank Car Gasoline Market Continues Quiet but Fairly Steady

By SPECIAL CORRESPONDENT

CHICAGO, Nov. 19.—Continuation of a quiet but reasonably steady course in the tank car gasoline market, pending a more clearly defined trend of trade developments that are now uncertain, is noted here. The current volume of spot gasoline business is at a low level, but it appears to be about sufficient to offset the offers. The amount of buying normally by tank car, now diverted to tank wagon, appears to have been growing recently.

Tank wagon and service station gasoline prices in this territory are still low as a whole. In general they are as low as they have been at any time in months, notwithstanding a few minor advances. This is operating to keep jobbers and other buyers from substantial tank car purchases. However, contract shipping instructions are still reaching refiners in large volume.

Reaction here to developments at the American Petroleum Institute meeting is mixed, but many observers believe they see a real fight in the making—a fight which may jump the bounds of the fundamental issue of conservation of petroleum and stabilization of the industry and become vindictive over side issues. It has long been hoped here that control of affairs of the business could be arranged so as to permit a period of quiet stability in markets. Some are still hopeful that this can be achieved, but many fear recent events have made it more doubtful.

Await Early December

Agitation over the question of jobber margins and dealer discounts seems to have died down for the moment, but the fore part of December, when new contracts carrying reduced dealer discounts become effective, may see some active developments. Dealers in this region affiliated with the Chicago Service Station Operators Association have reaffirmed their position opposed to a reduction. They are taking comfort from the recommendations of President Byles of the A.P.I. for a sliding scale of dealer discounts.

Discussion continues on the subject of differentials for certain classes of sellers below regular gasoline prices. Some observers have given up hope of seeing a real solution of this question effected. Various factions are violently opposed to each other on this.

Want Prices Advanced

The recent advance of three-tenths cent in normal gasoline prices in the Middle West had a limited application. It is impossible to ascertain the proportion of the number of subnormal points to the total and the proportion of total gallonage represented by subnormal prices, but the percentage must be an extremely large one in each case. Independent interests are calling vociferously for restoration of old prices, or at least some kind of general upward adjustment in actual quotations. At the same time some major executives point out that their much reduced prices are still being undercut by competitors. Some indication of the outlook for early next year may be afforded by the bids on the Chicago post office business, involving some 250,000 gallons of gasoline for the first quarter of 1935.

Kerosene

Kerosene has been one of the firmest of all products in the tank car market in recent days. Supplies offered in the open market are limited, the bottling up of hot oil in East Texas having affected this item as much as gasoline. Current

(Continued on Page 64)

Crude Oil Prices

(Continued from Page 25)

Humble Oil & Refining Co. and Texas Co. Effective September 29 in Salt Flat by Shell Petroleum Corp.

Rocky Mountain States

Iles, light (Sept. 29, 1933)	$.96
Iles, heavy (Sept. 29, 1933)	.90
Florence, Colo. (June 17, 1933)	.80
Fort Collins and Wellington, Colo. (June 17)	(See Salt Creek prices)
Big Muddy (Sept. 29, 1933)	1.01
Frannie, light (May 1, 1934)	.70
Frannie, heavy (Sept. 29, 1933)	.62
Salt Creek and LaBarge (Sept. 9, 1933)	See Stanolind Mid-Continent price schedule
Grass Creek, light (Sept. 29, 1933)	1.18
Grass Creek, heavy (Dec. 16, 1932)	.45
Elk Basin (Sept. 29, 1933)	1.18
Rock Creek (Sept. 29, 1933)	1.02
Dutton Creek (July 8, 1933)	See Mid-Continent gravity prices
Lance Creek (Dec. 16, 1932)	.92
Poison Spider (Mar. 15, 1931)	.70
Hudson (June 2, 1931)	.65
Lander (Mar. 5, 1931)	.40
Rex Lake (Feb. 22, 1930)	1.10
Osage	1.08
Lost Soldier (Sept. 30, 1933)	.88
Hamilton Dome:	
Below 18° (July 1, 1934)	.52
18° and above (July 1, 1934)	.62
Torchlight (Sept. 29, 1933)	1.18
Greybull (Sept. 29, 1933)	1.18
Pondera	1.15
Sunburst (Sept. 29, 1933)	1.35
Cat Creek, Montana	1.07
Hogback (Sept. 29, 1933)	1.11
Lea County, N. Mex. (Sept. 29, 1933)	.75
Maljamar (Sept. 29, 1933)	.70
Artesia-Jackson (Dec. 1, 1933)*	.75

Note—Salt Creek, Torchlight, Elk Basin, Grass Creek, Frannie, Greybull, Hogback and Iles by Stanolind Oil & Gas Co. Elk Basin, Grass Creek light, Big Muddy, Rock Creek and Sunburst by Ohio Oil Co. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Lea County, effective September 29, 1933, by Humble Oil & Refining Co. and other buyers; Fort Collins, Wellington, Orchard, Florence, Big Muddy, Cat Creek, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro. Hamilton Dome, Wyo., by Stanolind Oil & Gas Co.

*Continental Oil Co.

Nor'h Louisiana and Arkansas

Smackover, Ark. (all grades)	$.70
Tullos, Urania, La. (Jan. 13, 1934)	.37
Nevada, Ark. (Sept. 29, 1933)	.60
East El Dorado (Sept. 29, 1933)	.70
Converse, La. (Mar. 17, 1934)	1.03
Elm Grove, La. (Sept. 29, 1933)	.75
Holly, La. (Nov. 17, 1934)	1.03
Pleasant Hill, La. (Mar. 17, 1934)	1.03
Zwolle, La. (Mar. 17, 1934)	1.03
Champagnolle, Ark. (Mar. 17, 1934)	.81
Lisbon, Ark. (Mar. 17, 1934)	1.03
Stephens, Ark. (Sept. 29, 1933)	.70
Urbana, Ark. (Mar. 17, 1934)	.60
Other fields	(See gravity table)

Note—Smackover: Effective September 29, 1933, Texas Co., Magnolia Petroleum Co., Standard of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co. and Phillips Petroluem Co. East El Dorado posted by Magnolia Petroleum Co. and Gulf Refining Co., Nevada by Standard Oil Co. of Louisiana. Urbana posted by H. L. Hunt, Inc., and Louisiana Oil Refining Co. Converse, Holly, Zwolle and Urbana by Standard Oil Co. of Louisiana; Elm Grove by Simmons Oil & Refining Co.; Pleasant Hill by Standard Oil Co. and Magnolia Petroleum Co. Champagnolle by Standard Oil Co. and Lion Oil & Refining Co.

Eastern States

TIDE WATER PIPE CO.
(Effective Nov. 6, 1934)

Bradford, Pa.	$2.30
Allegany, N. Y.	2.30

SOUTH PENN OIL CO.
(Effective Nov. 6, 1934)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field)	$2.30
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	1.97
Pennsylvania Grade Oil in Eureka Pipe Line lines	1.92
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.82
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (Oct. 2, 1933)	1.27

PENNZOIL CO.
(Effective Nov. 6, 1934)

Pennsylvania Grade Oil in National Transit Lines:	
Group A (Includes Cochran, Franklin, Hamilton and Doolittle districts.	$2.22
Group B (Includes Titusville district.	2.21
Group C (Includes Turkey and Tidioute districts.	2.20
Group D (Includes Bear Creek and Porkey districts.	2.19
Group E (Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kennerdell, Emienton, Tiona, Lacey and Kinsua districts. Price depends on length of pipe line haul to plant at Oil City.	2.17

PURE OIL CO.
(Effective Nov. 6, 1934)

Cabin Creek, W. Va.	$1.92
Bradford Hollow, W. Va.	1.92
Kelly Creek, W. Va.	1.92

CREW-LEVICK CO.

Oil City-Titusville	$2.22

Middle Western States

OHIO OIL CO.
(Effective September 29, 1933)

Lima	$1.30
Illinois (Jan. 5, 1934)	1.13
Princeton, Ind. (Jan. 5, 1934)	1.13
Plymouth	Shut in
Western Kentucky (May 26, 1934)	1.08
Midland, Mich. (Sept. 30, 1933)*	1.02
West Branch, Mich.	.86
Oceana, Mich. (Oct. 5, 1933)	.90
Somerset, Ky. (Sept. 30, 1933)	1.23

*Posted by Pure Oil Co. and Simrall Pipe Line Co. Producers Pipe Line Co. pays 5 cents per barrel over Pure Oil Co.'s posted prices. West Branch, Mich., posted by Simrall Pipe Line Co. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and posted price includes premium. Oceana posted by Old Dutch Refining Co. and Naph-Sol Refining Co.

Canada

Ontario (September 9, 1933):	
Petrolia*	$2.10
Oil Springs	2.17
Turner Valley (May 31, 1934):†	
Clear naphtha	$2.55
Discolored naphtha	2.37
Crude oil, 50 gravity	2.19
Crude oil, 45 to 49.9	2.07
Crude oil, 40 to 44.9	1.50

*Imperial Oil, Ltd. †Imperial Oil, Ltd. and Regal Oil & Refining Co.

Mexico

Panuco*	$0.98

*F.o.b. ship, based on September transactions and exclusive of production and export taxes and bar dues.

California Crude Oil Prices

STANDARD OIL CO. OF CALIFORNIA
(Effective September 6, 1933)

For current purchases of crude oil at the well (unless otherwise specified). (All gravities above those quoted take highest price offered in that field.)

Gravity—	Long Beach	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda, Brea Canyon	Athens-Rosecrans	Torrance	Richfield	Whittier, La Habra	Montebello	Santa Fe Springs	La Habra-Coyote	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills	Coalinga	Coyote
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	....	$.65	$.65	$.65	$.65	....	$.65	$.57	$.57	$.57	$.65
15-15.9	.65	.65	.69	.69	.66	.69	....	.66	.65	.65	.65	....	.65	....	....	....	.65
16-16.9	.66	.65	.72	.73	.69	.73	....	.69	.67	.68	.65	....	.65	....	....	....	.65
17-17.9	.69	.65	.75	.76	.73	.76	....	.72	.70	.71	.65	....	.68	....	....	....	.68
18-18.9	.72	.65	.78	.80	.76	.79	....	.75	.74	.74	.65	....	.71	.61	.61	.59	.71
19-19.9	.75	.65	.81	.83	.80	.82	....	.78	.78	.78	.65	....	.74	.64	.65	.62	.74
20-20.9	.78	.68	.85	.87	.83	.85	....	.81	.82	.81	.66	....	.78	.67	.69	.65	.78
21-21.9	.81	.72	.86	.90	.87	.88	....	.83	.85	.84	.69	$.72	.81	.70	.73	.68	.81
22-22.9	.84	.76	.89	.94	.90	.92	....	.85	.89	.87	.72	.76	.84	.73	.76	.72	.84
23-23.9	.88	.81	.92	.97	.94	.95	$.83	.89	.92	.90	.76	.79	.87	.77	.79	.75	.87
24-24.9	.91	.85	.95	1.01	.97	.98	.86	.92	.97	.93	.80	.83	.90	.81	.82	.78	.90
25-25.9	.94	.89	.98	....	1.00	1.01	.90	.95	1.00	....	.85	.87	.93	.85	.85	.81	.93
26-26.9	.97	.93	1.01	....	1 04	1.04	.94	.98	1.04	....	.89	.90	.96	.89	.88	....	.96
27-27.9	1.00	.98	1.04	....	....	1.07	.97	....	1.08	....	....	.94	.99	.93	.91	....	.99
28-28.9	1 03	1.02	1 07	....	....	1.10	1.01	....	1.11	....	....	.98	1.02	.97	.94	....	1.02
29-29.9	1.06	1.05	1.09	....	....	....	1 04	....	1.15	....	....	1.01	1.05	1.01	.97	....	1.06
30-30.9	1.09	1.10	1.12	....	....	....	1.08	....	....	....	....	1.05	1.09	1.05	1.00	....	1.09
31-31.9	....	....	....	....	....	....	1.12	....	....	....	....	1.08	1.12	1.09	....	....	1.12
32-32.9	....	....	....	....	....	....	1.15	....	....	....	....	1.12	1.15	1.13	....	....	1.15
33-33.9	....	....	....	....	....	....	....	....	....	....	....	1.16	1.18	1.17	....	....	1.18
34-34.9	....	....	....	....	....	....	....	....	....	....	....	1.19	1.21	....	....	....	1.21
35-35.9	....	....	....	....	....	....	....	....	....	....	....	1 23	....	....	....	....	....
36-36.9	....	....	....	....	....	....	....	....	....	....	....	1 26	....	....	....	....	....
37-37.9	....	....	....	....	....	....	....	....	....	....	....	1.30	....	....	....	....	....
38-38.9	....	....	....	....	....	....	....	....	....	....	....	1 34	....	....	....	....	....

Additional Standar Oil Quotations

Mountain View—Effective July 3, 1934, the following are the prices of the Standard Oil Co. of California for its current purchases of crude oil at the well in the Mountain View Field: 14 to 19.9 degrees, 57 cents; 20-20.9, 58 cents; 21-21.9, 59 cents; 22-22.9, 61 cents; 23-23.9, 63 cents; 24-24.9, 66 cents; 25-25.9, 69 cents; 26-26.9, 72 cents; 27-27.9, 75 cents; 28-28.9, 78 cents; 29-29.9, 81 cents; 30-30.9, 84 cents; 31-31.9, 87 cents; 32-32.9, 90 cents; 33 degrees and above, 93 cents.

Elwood Terrace—F.o.b. ship, 33 degrees, $1.03; 34 degrees, $1.06; 35-35.9, $1.09; 36-36.9, $1.12; 37 degrees and over, $1.15.

Newhall—14 degrees and over, 57 cents.

McKittrick and Kern River—14 degrees and over, 57 cents.

Wheeler Ridge—14 to 17.9 degrees, 57 cents; 18-18.9, 58 cents; 19 19.9, 61 cents; 20-20.9, 64 cents; 21-21.9, 67 cents; 22-22.9, 70 cents; 23-23.9, 73 cents; 24-24.9, 76 cents; 25 degrees and over, 79 cents.

Kettleman Hills—33-33.9 degrees, 93 cents; 34-34.9, 96 cents; 35-35.9, 99 cents; 36-36.9, $1.02; 37-37.9, $1.05; 38-38.9, $1.08; 39 degrees and over, $1.11.

The Texas Co. posted in Shiells Canyon, South Mountain and Santa Paula as follows: 14 to 17.9, 57 cents; 3 cents added for each degree up to and including 26-26.9 degrees at 84 cents; then 4 cents added for each degree up to and including 30 degrees and over at $1. Company posts Standard Oil Co.'s Montebello prices in Montebello and North Whittier, and posts Standard Oil Co. prices in Signal Hill, Alamitos Heights, Huntington Beach, Torrance, Richfield and Santa Fe Springs, all effective September 6.

General Petroleum Co. posts Standard Oil Co. prices in Athens, Rosecrans and Signal Hill; Alamitos Heights up to 26-26.9; Santa Fe Springs up to 35-35.9; Richfield up to 25-25.9; Brea Canyon and Olinda up to 25-25.9, and Torrance up to 25-25.9.

Union Oil Co., effective September 6, posts same price as Standard Oil Co. in all fields in which both purchase, excepting that in Athens-Rosecrans, Union Oil Co. posts 21-21.9, 72 cents, and 33-33.9, $1.18; 34-34.9, $1.21, and 35-35.9, $1.24.

Associated Oil Co., effective September 6, posted same prices for the same grades as Standard Oil Co. of California, excepting that in some fields its gravity scale stops as follows: Huntington Beach, 26 degrees and over; Seal Beach and Alamitos Heights, 26 degrees and over; Coyote Hills, 23 degrees and over; Richfield, 25 degrees and over; Torrance, 25 degrees and over; Inglewood, 24 degrees and over; Santa Fe Springs, 35 degrees and over; Midway-Sunset, Elk Hills, Buena Vista Hills, 30 degrees and over. Also Associated pays 53 cents for oil of 11 to 13.9 gravity in McKittrick, Kern Front, Kern River, Midway-Sunset, Elk Hills, Buena Vista Hills and Coalinga.

Second Productive Sand in New McNeil Field; One Mile Extension of Sam Fordyce to East

SAN ANTONIO, Tex., Nov. 19.—The discovery of a second productive sand in the new McNeil Field, Live Oak County, and the assurance of a 1-mile east extension to the Sam Fordyce Field in southwestern Hidalgo County, were the featured developments in the Southwest Texas district the past week.

Northeast of the discovery well in the McNeil Field, Live Oak County, Lion Oil & Refining Co.'s No. 2 McNeil cored sand from 5,914-17 feet which showed some saturation and very high gas pressure, which threatened to blow out. The test failed to make a producer in the 4,360-foot sand in the Hockleyensis from which the discovery well is producing, and is reported to have tested the Pettus sand around 5,225 feet which tested dry. An electrical coring test was made at 5,700 feet, and for this reason it is definitely known that the latest showing is coming from a new sand. As yet the formation has not been definitely identified, but it is thought to be the lower Yegua series, or in the Cook Mountain.

Sam Fordyce Field

One mile east of production in the Sam Fordyce Field, southwestern Hidalgo County, Davis and Harrison's No. 1 Guerra has not been officially completed, but has definitely assured the field of an extension. The well is cleaning itself through a one-eighth inch tubing choke and is showing 1,050 pounds of working pressure. It is reported to be making some oil, considerable gas and drilling mud, from sand at 2,734-40 feet, the total depth. While this outpost test was making a favorable showing another test 4,000 feet from the discovery, proved disappointing. It is Heep Oil Corp.'s No. 1 W. R. Jackson in Tract 278, Porcion 40, which tested salt water and 3 fourbles of oil in sand from 2,777-80 feet and is now being carried to the Cockfield formation which is expected to be found around 5,500 feet.

The southern limits of the field was further defined when King-Woods Oil Co. and others' No. 1 David Flores, in Tract 262, Porcion 38, about 2,000 feet west of the discovery, began making salt water while cleaning itself. Saturated sand was cored in the test from 2,776-2,780 feet. This makes the fourth salt water well in the field. Heep Oil Corp.'s No. 1 Francisco Guerra, in Tract 254, Porcion 40, northeast of the discovery, about 3,000 feet has been temporarily abandoned, after it showed nothing but gas on a drill stem test from 2,737-43 feet. This apparently defines the producing limits of the field in this direction.

Four other tests have reached the pay horizon and are due to be tested during the week. Kingwood Oil Co.'s No. 1 Francisco B. Guerra, in Tract 254, Porcion 39, about 1,800 feet north of the discovery, is testing through a five-thiry-seconds inch tubing choke and was making considerable oil, gas and considerable wash water while cleaning itself. Working pressure on the tubing was 1,150 pounds and closed-in casing pressure was 1,200 pounds. The same company's No. 3 John Lawrence, in Tract 274, Porcion 39, a few hundred feet east of the discovery, cored saturated sand from 2,746-57 feet and the operators have cemented casing at 2,746 feet. Northeast of the discovery about 700 feet, the company's No. 3 Francisco B. Guerra, in Tract 254, Porcoin 39, topped the upper gas sand at 2,764-76 feet and cored shale from 2,776-91 feet. Saturated sand was cored from 2,791-97 feet and casing was cemented at 2,793 feet. Lucky-Blocker and Bishop's No. 2 Francisco B. Guerra, in the southeast 20 acres of Tract 254, Porcion 39, about 1,650 feet northeast of the discovery, has the appearance of making a gas well, after testing 1 joint of oil and 250 pounds of gas pressure on a drill stem test from sand at 2,762-69 feet. The operators are trying to complete it for a producer, but if unsuccessful the casing will be perforated at the upper sand cored at 2,719-32 feet, and it will be completed for a gas well.

Wildcat Gas Show

The wildcat test of Davis and Harrison's No. 1 Mrs. Lula George, in Tract 13, Porcion 41, about 1½ miles northeast of the Sam Fordyce Field, made another gas show after the hole had been bailed dry at its total depth of 4,-135 feet. The operators have set liner, and are due to test it again during the week. Two other wildcats in the county have reached interesting depths, McCallum Exploration Co.'s No. 1 John C. Engelman, in Lot 3, Block 70, Las Mestenas grant, northeast of Edinburg, is drilling below 5,847 feet in hard sand. In the eastern part of the county, Union Sulphur Co.'s No. 2 American-Rio Grande Land & Irrigation Co., in Tract 2,082, Block 86, North Capisallo district, is drilling in sandy shale below 7,329 feet.

Bee County

Much interest is centered on the various producing areas of Bee County due to several tests showing promise of extending production. In the West Tuleta Field, three tests have cored saturated sand and are expected to be on the completion list this week. Mills Bennett Production Co.'s No. 1 Silcock, an east offset to the company's No. 1 Harris, a producer, which was completed last week for a half-mile west extension to the field, topped the Pettus sand at 3,862 feet and on a drill stem test from 3,878-3,918 feet it tested 400 pounds of pressure and about 15 feet of mud with an odor of oil, with no water present. The operators are coring and are expecting to set casing this week. Edwin M. Jones' No. 2 Skinner and Harris is waiting for cement to set after coring the Pettus sand. Circle W Oil Co.'s No. 2 Rapp cored saturated sand from 3,897-3,907 feet and is now being brought in.

In the northwestern part of Bee County, 2½ miles south of the Caesar Field, Worth Oil Co.'s No. 1 Rutledge is preparing to set and cement casing, after the test blew out and ran wild last week, while a drill stem test was being attempted. Its performance is reported to have created quite an active lease campaign in the area.

Karnes County

Pacific Gas & Fuel Co.'s No. 1 Choate, a wildcat in the southern part of Karnes County, and about 3 miles northwest of the North Pettus Field, is preparing to set casing in the Pettus sand, topped at 3,312 feet, which tested 390 pounds of gas pressure on a 10-minute drill stem last week. The test was made from 3,-305-14 feet. It was drilled to the Yegua sand, which showed salt water and the operators plugged back to the top of the Pettus sand, where it will be completed for a gas well.

Williamson County

In the north edge of the Byersville Field, in Williamson County, G. A. Rowsey's No. 1-B Sladek was completed for 25 bbls. of oil per hour from the Serpentine at a total depth of 887 feet. This is one of the best wells to be completed in this shallow field. It topped the Serpentine at 865 feet. Location is on a 195-acre tract in the H. White Survey. One other producer and three dry holes were completed by the same operator. His No. 1-C Henry Sladek was completed for 4 bbls. per day. No. 2 Heep was abandoned at 1,066 feet after it failed to encounter the Serpentine. No. 2-C Henry Sladek was abandoned at 1,-051 feet and No. 1-A Heep was abandoned at 1,100 feet in chalk. The Serpentine in this test was found at 767-990 feet but tested dry.

Balcones Fault Zone

Several failures were registered along the Balcones Fault zone. Muenrio Oil Co.'s No. 1 Pruett, in the J. A. Navarro Survey, Bastrop County, near the Cedar Creek Field, was abandoned at 1,805 feet after it failed to encounter the Serpentine. In Bexar County, Umburn and Jones' No. 1 Bilhartz, in the western part of the county, near the Van Ormy Pool, was abandoned at 1,839 feet after it tested salt water in the Edwards lime. Location is in the F. Rolen Survey. In the same county, F. T. Chew and others' No. 1 Ogden and Brooks was abandoned at 1,615 feet.

Frio County

In Frio County, the wildcat of Amerada Petroleum Corp., No. 2 Halff and Oppenheimer, is the first test to be drilled in the Southwest Texas district to the 10,000-foot level. The test reached this depth during the week and is now shut down at a total depth of 10,013 feet, where it has a fishing job. It is reported to be in the Trinity formation. Several showings of oil and gas were encountered from 5,712-5,803 feet. Location is 4 miles southwest of Pearsall in the J. H. Gibson Survey No. 16.

San Patricio County

Allied Minerals' No. 1 Ramsey, a wildcat in the North B. Gidding Survey, San Patricio County, is moving in a heavier rig to drill deeper. Twelve miles due east of Sinton, Carpenter and others' No. 1 Sadler, in the Mud Flats area, abandoned about three months ago, is preparing to start up to drill deeper. The old total depth is 6,009 feet. In the Sinton Field, Plymouth Oil Co.s' No. 2-B Welder, which is to be drilled to 7,000 feet, is shut down at 1,394 feet waiting on cement to set.

McMullen County

In McMullen County, Texio Oil Co. has made location and spudded its No. 1 Edringron, in the southeast part of the county in Section 79. The drilling contract has been let to Rowan and Hope of San Antonio, and calls for a test of all known producing horizons in that area down to, and including the Pettus sand, or to a total depth of 3,-500 feet. The area has been worked with geophysical instruments, and it is reported Humble Oil & Refining Co., Magnolia Petroleum Co. and the Texas Co. own considerable acreage near the test.

Travis County

In the Kimbro area, northeastern Travis County, Humble Oil & Refining Co.'s No. 2 Buck Christian gave that area a setback when it made only a small amount of oil when first completed and went to salt water. It was completed last week at a total depth of 757 feet. Same company's No. 2 Peterson was also abandoned at 836 feet. It topped the Serpentine at 712 feet.

Wildcat Operations in Southwest Texas

Week Ending November 17

BANDERA COUNTY

A. P. Crane & Co.'s No. 1 Watson, 988 ft. NE line, 936 ft. SE line, Sec. 71, Antonio Curvier Sur.
T.D. 1,790 ft.; standing.

Plateau Oil Co.'s No. 1, Garrison Sur. No. 606, 1,500 ft. from N and 2,700 ft. from E lines of Sur. (8 mi. SW of Medina).
T.D. 1,181 ft.; reaming to lower 12½-in. csg.

Muenrio Oil Co.'s No. 1 E. M. Pruitt, 2,-418 ft. from NE line, 330 ft. from SE line of J. A. Navarro Sur.
Abd. 1,805 ft.

BASTROP COUNTY

Champion et al's No. 1 Charles E. Anderson, Antonio Navarro Sur.
Standing 850 ft.

BEE COUNTY

Cecil Hagan's No. 1 John R. Scott, 1½ mi. NE of Morgan test.
Moving in material.

R. M. Herod's No. 5 Kimball, 810 ft. from E line, 150 ft. from N line of 110-ac. tract in S. Winship Sur.
Derrick.

Bill Hindeman's No. 1 Imogene Hall, 2,310 ft. along NW line of 8½ of H. W. Fontaine Sur., thence at R/A 1,263 ft.
Location.

Wm. F. Morgan et al's No. 1 Hicks & Hall. Sec. 43 (Normanna area).
Swbng. 5,638 ft.

Humble O. & R. Co.'s No. 1 Daniel Fox, 7,-500 ft. from N line, 3,370 ft. from E line of 1,884-ac. tract in M. Fox Sur.
Broken shale and soft sand 5,283 ft.; completed fishing job.

Mid-Continent Cruce Oil Co.'s No. 2 Kimball (Grayburg area).
Coring 3,530 ft.

R. J. Worthington et al's No. 1 Rutledge, 1,000 ft. from N line and 200 ft. from E line of A. Hadley Sur.
T.D. 3,434 ft.; preparing to set csg.

BEXAR COUNTY

Lloyd Bender's No. 1 Evans, 1,200 ft. from W line, 200 ft. from N line of 319.7-ac. tract in de la Garza Sur.
Standing 979 ft.

F. T. Chew's No. 1 C. S. Ogden & Brooks, 50 ft. E line, 2,500 ft. from Mitchell Lake, on 1,500-ac. tract, Irrigated farms.
Abd. 1,615 ft.

Dr. Dickens' No. 1 Victor Golla, 150 ft. NW line and 150 ft. NE line of Cardines No. 35 Sur.
S.D. 530 ft.; set csg.

Jones & Kieffer's No. 1 LaGrane, NW cor. of tract, 210 ft. each way, F. Rolen Sur.
Spudded.

McFee & Briggs' No. 1 Lamb, 9,200 ft. from S line, 300 ft. W line, Manvel Deluna Sur. No. 3, Tract A. & B.
S.D. 1,065 ft.

Geo. O'Neill et al's No. 1 Salek Cherniarsky, E of Eckert Field.
Drlg. 200 ft.

Ricker, Auld & Bonner's No. 1 French Estate, S of C Sec., on 1,000-ac. tract.
S.D. 1,513 ft.

R. Y. Walker's No. 1 L. A. Hamilton, 550 ft. SE and NW cor, 1,110 ft. NE of NW line of tract, Blk. 4,007.
Drlg. 765 ft.

BROOKS COUNTY

Helmerich & Payne's No. 1 Scott and Hooper, Palo Alto y Guerra grant.
Location.

CALDWELL COUNTY

Anderson's No. 1 Perry, 330 ft. SE and NE lines of 27-ac. tract, Giddeon Pace Sur.
Drlg. 1,955 ft.

O. Dawn's No. 1 F. Tiller, 250 ft. from N line, 1,000 ft. from E line of 37-ac. tract, in G. Hinds Sur.
Drlg. 1,905 ft.

Fomax Oil Co.'s No. 1 B. G. Tiller, 500 ft. from N line, 150 ft. from W line of tract in G. Hinds Sur.
Derrick.

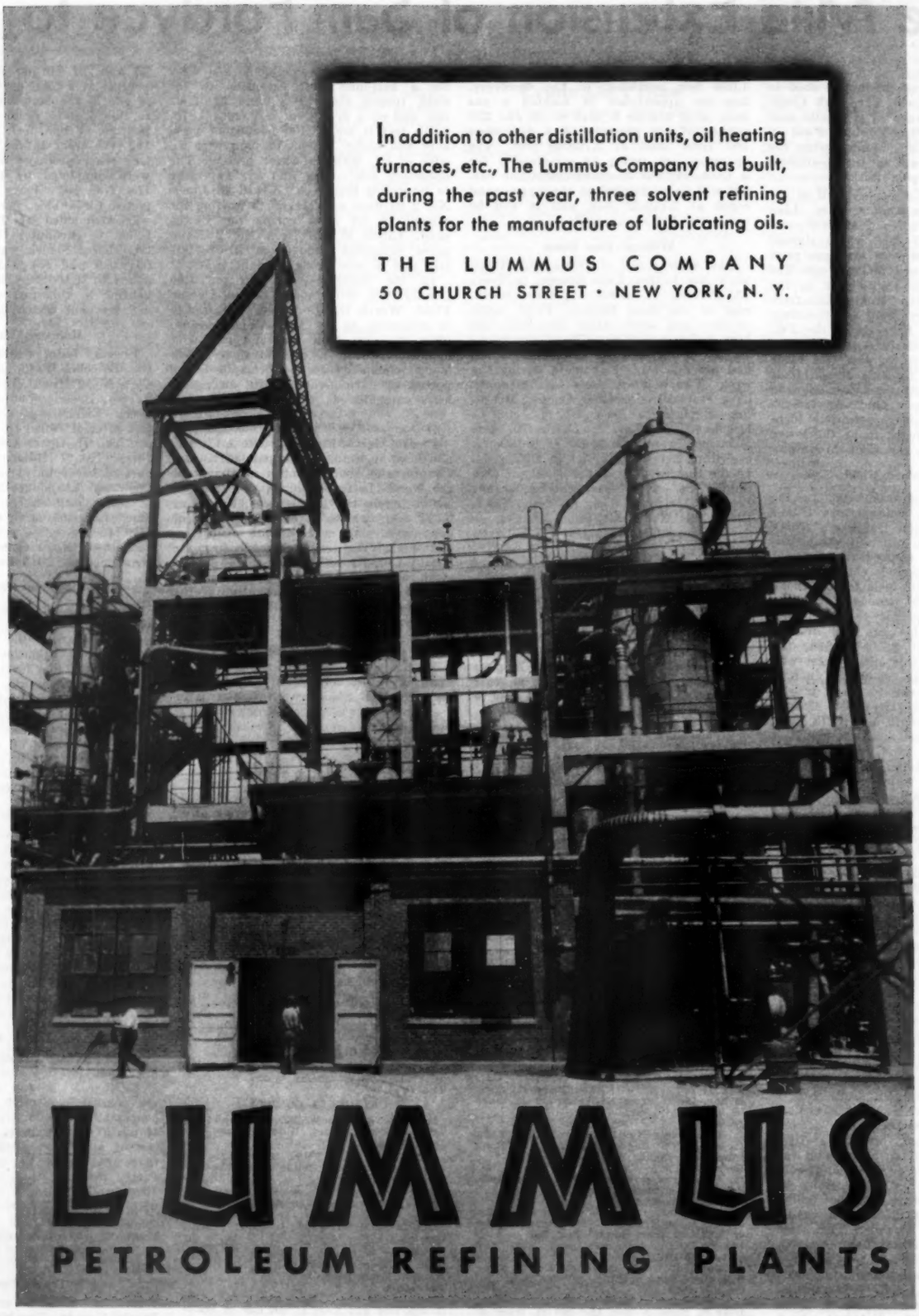
F. P. Hynes et al's No. 1 Tramwell, 750 ft. from SE line and 330 ft. from NE line of tract in Ester Berry Sur.
No report.

Kurz Oil Co.'s No. 1 Kurz ranch fee, 4,000 ft. SW line and 4,300 ft. SE line of Barnard Klekant Sur.
T.D. 3,615 ft.; S.D.

F. Meyers' No. 1 Mooney, 260 ft. from road, 330 ft. from middle of SE cor. of 102-ac. tract, Seale Sur.
Moving in rig.

Stanley Smith's No. 1 J. C. Copeland, about 4 miles SW of Lockhart and beyond the Mebana Estate.
Setting up machinery.

(Continued on Page 61)


In addition to other distillation units, oil heating furnaces, etc., The Lummus Company has built, during the past year, three solvent refining plants for the manufacture of lubricating oils.
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Oil-Gas Showings in Deepest West Texas Test; Area in Eastern Howard County Extended

By L. E. BREDBERG
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Nov. 19.—More showings of oil and gas in West Texas' deepest Ordovician test, a three-quarter mile extension to the Dodge-Denman area of eastern Howard County, staking of 14 locations and completion of 17 tests were the features in the Permian Basin during the week.

Gulf Production Co.'s No. 103 McElroy, in the McElroy Field, Section 197, Block F, Upton County, which is making a stab at production from the Ellenberger lime, revived interest when it encountered a series of porous lime streaks when drilling from 10,930 to 10,960 feet, and tubing was run to the bottom, which is 10,978 feet, to make a test of the showings. The hole is being cleared to the bottom, fresh water used for drilling below 10,301 feet, where the record string of pipe was run last summer, being swabbed to 8,400 feet. As soon as hole is swabbed dry the tubing will be pulled for resumption of drilling.

Much of the drilling has been through chert, an extremly hard formation, and but few breaks have been logged. The present porous streaks are the second ones logged to show oil, the former yielding but a small amount of high gravity oil. Oil from the present logged streaks tested 40 gravity. Whether the test has yet encountered the Ordovician is still unknown.

The second deepest wildcat test in the district is Skelly Oil Co. and others' No. 1-D University (Grayson), in southeastern Reagan County, Section 25, Block 9. It is below 7,075 feet in black shale and chert, encountering no difficulty in drilling and making exceptionally good time.

John I. Moore's No. 1 L. S. McDowell, Section 22, Block 23, Township 2s, T.&P. Survey, north central Glasscock County, is nearing the 7,000-foot mark. This is another Ordovician test, several major companies having purchased interests.

Iron Mountain Oil Co.'s No. 1 Read, SW Section 46, Block 30, Township 1n, T.&P. Railway Survey, in the Dodge or Denman area, and three-quarters of a mile northwest of production, appears sure of making a good well and proving considerably more acreage. The latest report showed it shut down at 2,710 feet with a hole full of oil, one head having been made. It is one of the most important outpost tests in the district.

Andrews County

Humble Oil & Refining Co.'s No. 1 Means, discovery well in Section 2, Block A-35, northeastern Andrews County, was swabbed during the week to revive production which had dropped to nothing the middle of the week. This was a small well when completed, as is the company's well to the east in Section 6, Block A-19, which pumped 50 bbls. of fluid, 85 per cent oil and 15 per cent b.s. and water in 24 hours ending November 17. Total depth of this well is 4,562 feet after plugging back to shut off water, which was not entirely successful. The company has made a diagonal offset to the discovery, in Section 4, Block C-45, 1,980 feet from the south line and 3,300 feet from the west line.

Honolulu Oil Co. and Llano Oil Co.'s No. 1 Parker in Section 7, Block A-44, southeast of the Deep Rock Pool, Andrews County, is bottomed at 4,780 feet in lime, where it struck sulphur water. It tested from 8 to 10 bbls. of water per hour at this depth and the companies are preparing to plug back and shoot the saturated horizon above where it showed considerable oil. It will no doubt make a small producer when shot, but does not look as promising as it did.

R. S. Bond and others' No. 1 McCarley, in Section 29, Block 3, about 5 miles east of the Parker test, Andrews County, is drilling around 4,850 feet. Elevation is 3,090 feet.

Ector County

Landreth Production Co. and Humble Oil & Refining Co.'s wildcat test in Section 20, Block 44, Township 1n, T.&P. Survey, northwest Ector County, is causing its owners plenty of trouble. It was plugged back from 4,236 to 4,145 feet to shut off water and acidize. The treatment caused the heavy gas to break in again, with a spray of water that froze because of the high pressure. The big gas was struck at 4,085 feet.

On the eastern side of the district Petroleum Oil Interests, Inc.'s No. 1 H. C. Bradley, Section 263, Austin and Williams Survey, about 2½ miles northeast of the McMillan Pool in Runnels County, seemed destined as a dry hole after drilling into salt water at 2,510 feet. It had shown some oil from the 23-foot sand section topped at 2,488 feet, and the test will be plugged back to that horizon.

Reeves County

Location for Herbert Oil Co.'s No. 1 Williams and Walker, Section 6, H.& G.N. Survey, Reeves County, is for a Delaware sand test on a trend in which production has already been found in a well on the Monroe lands to the north, across the river in Ward County. The Wheat Field is about 13 miles north, in Loving County, the first Delaware pool in the district.

Winkler County

Doctor Jeffries has staked location for an interesting test on the Underwood lands in Section 26, Block B-3, at the town of Kermit in Winkler County. It will be on the sand fringe trend east of the Hendricks Field, approximately 4½ miles southeast of the Sayre-Howe discovery well, and 9 miles due north of Skelly Oil Co.'s discovery in Section 25, Block B-11. There is a small producer about 1¼ miles southeast.

Jones County

The Nugent Oil Co. has staked location for a wildcat on the Wilson ranch, in Section 1, Block 2, T.&N.O. Survey, Jones County, and is drilling around 100 feet. Byram and others have location staked near their discovery in Section 5, Block 15. The new location is in the southwest quarter of the same section. The discovery made an initial production of 100 bbls. per day at total depth of 1,935 feet.

180 Tests

There are 166 tests at various stages in the West Texas district, with 14 locations added to the list this week, making a total of 180 drilling, shut down or preparing to drill. Sixteen tests were completed during the past week, adding 2,051 bbls. to the daily output. One well in the Yates Field, Marathon Oil Co.'s No. 5-G Yates, was completed for an initial production of 165 bbls. per hour, whereas all the other completed wells had 24-hour gauges taken to obtain their initial production.

Gulf Production Co. has abandoned its No. 2 White and Baker test in Section 5, Block 207, T.C. Survey, northwest of the Yates Field, at a total depth of 1,461 feet. It is drilling No. 3 White and Baker in Section 4 of the same block and survey. No. 1 White and Baker was also a dry hole.

Another test, Bates, Currie and others' (formerly Wahlenmaier Petroleum Co.'s) No. 1 Boyd, in Section 9, Block 36, Township 5s, T.&P. Survey, was abandoned this week, marking off another possible producing area in southwest Glasscock County. Total depth is 3,656 feet.

Jones and Stasney and others have blocked approximately 8,000 acres in the vicinity of Avoca, Jones County, and J. W. Coolidge of Dallas is core drilling.

WICHITA FALLS DISTRICT

Jones and Stasney of Albany have taken two drilling blocks for 1,500-foot tests, 5 and 6 miles southeast of Leuders on the King and Davis ranches in western Shackelford County. Another 1,900-foot test is to be drilled on an 865-acre block on the W. D. Baker lands, consisting of the W. H. Watson and J. B. Kinchen Surveys, in the same part of the county.

Continental Oil Co. has sold its 328 acres in the shallow district southeast of Burkburnett, including 39 wells with a daily gross production of 25 bbls. in the H. Hastie Survey. These wells have been producing for 16 to 18 years and production has fallen to less than 1 bbl. per well per day.

J. S. Bridwell of Wichita Falls has purchased 7,000 acres in fee from the Archer County Commissioner's Court. The land was formerly owned by L. C. and S. Herron and W. L. Andrews and others. The lands are in the shallow prospective areas in the W. L. Spavin Survey 9, J. B. Gholson, R. C. Peters Surveys and T.E.&L. Surveys No. 1,830, 1,831, 1,833, 1,834, 1,851, 1,852, 1,853, 1,866, 1,803, 1,804 and the east 160 acres of 1,826 and also the W. M. Yearly and James Hollingsworth Surveys.

Texas Co.'s No. 6 Les K. Johnson, 1,500 feet northwest of production in the Johnson Pool of western Foard County, had an oil showing at 3,489-3,536 feet and from 3,536-38 feet, being shut down at the latter depth to set casing. The wells produce a large amount of gas with the oil, the gas being processed in a gasoline plant erected by the company on the lease, the gasoline being shipped out by tank cars.

Pitzer and West of Breckenridge have taken a block of 6,000 acres 5 miles north of the old Ibex Pool in eastern Shackelford and will drill to test three different pay horizons in the area, going to 4,000 feet if necessary. The first sand to be logged is the 2,250-foot Compton sand. The Breckenridge lime is around 3,570 feet and the Marble Falls horizon is around 4,050 feet. The same operators have taken 1,000 acres of leases on the Gardner lands 7 miles north of Graham in north Young County, pooling their leases with the Simms Oil Co. for a 4,000-foot test.

Production in the district averaged 60,155 bbls. per day during the week. There were 31 tests completed and 36 started.

There were 15 locations staked in the Panhandle district and 11 tests were completed, none proving dry. Production averaged 56,655 bbls. per day, an increase of 3,886 bbls. over the previous week.

Wildcat Operations in West Texas

Week Ended November 19

ANDREWS COUNTY

R. S. Bond et al's No. 1 McCarley, 1,320 ft. from N and W, Sec. 29, Blk. 3, P.S.L. Sur.
Drlg. 4,850 ft.

Honolulu and Llano Oil Co.'s No. 1 J. E. Parker, 1,320 ft. from S line and 1,470 ft. from W line of Sec. 7, Blk. A-44, P.S.L. Sur.
S.D. 4,780 ft.; sulphur water; to plug back.

Humble Oil & Ref. Co.'s No. 1 B. S. Walker, 660 ft. from E line and 660 ft. from S line of Sec. 6, Blk. A-43, P.S.L. Sur.
Drlg. 4,490 ft.

Humble Oil & Ref. Co.'s No. 2 Means, 1,980 ft. from S and 1,487 ft. from W, Sec. 6, Blk. A-19.
Pumped 50 bbls. fluid, 85 per cent oil and 15 per cent water.

Humble Oil & Ref. Co.'s No. 2 Means, 660 ft. from N and 1,980 ft. from W, Sec. 11, Blk. A-35.
Spudded.

Humble Oil & Ref. Co.'s No. 3 Means, 1,980 ft. from S and 3,300 ft. from W, Sec. 4, Blk. C-45.
Cellar.

BORDEN COUNTY

Moore Bros.' No. 1 Clayton & Johnson, 1,320 ft. N and E, Sec. 29, Blk. 32, Twp. 4n, T.&.P. Sur.
Location.

BREWSTER COUNTY

Joiner et al's No. 1 McIntyre, 353 ft. from S, 2,290 ft. from E of Sec. 31, Blk. 352, W. M. Mitchell Sur.
S. D. 2,190 ft.

King & Franklin's No. 1 Gage Est., C Sec. 138, Blk. 32, G.H.&S.A. Sur.
S.D. 341 ft.

COCHRAN COUNTY

Kelsey's No. 1 Slaughter, C Labour 36, League 150, R.C.S. Lands.
Location.

West Texas Development Co.'s No. 1 Slaughter, near C of Labour 53, League 149, Randall Co. School Lands.
Derrick.

COKE COUNTY

Wm. Hooper's No. 1 Gaston, 240 ft. from S line and 654 ft. from W line of Joseph Sur. No. 11.
S.D. 2,560 ft.

CRANE COUNTY

Loffland Bros. et al's No. 1 Tubbs.
T.D. 4,510 ft.

Strauss' No. 1 Phelps et al, 2,113 ft. from N and 713 ft. from NW Sec. 13, Blk. 31, H.&T.C. Sur.
S.D. 420 ft.

CULBERSON COUNTY

Anderson-Pritchard Oil Corp., Magnolia Pet. Co. et al's No. 1 Borders, 1,255 ft. N and 2,305 ft. from W, Sec. 34, Blk. 69, P.S.L. Sur.
Fishing 328 ft.

Miller Bros.' No. 1 fee, 1,900 ft. from N and 660 ft. from E line of Sec. 21, Blk. 97, P.S.L. Sur.
Drlg. 2,100 ft.

Wood et al's No. 1 Hall, 250 ft. from S and 85 ft. from E, Sec. 11, Blk. 54½, 16 miles N of Van Horn, P.S.L. Sur.
S.D. 246 ft.

(Continued on Page 60)

COMPLETIONS IN WEST TEXAS

Crane County

Continental Oil Co.'s No. 1 Dawson, top pay 2,358 feet, total depth 2,478 feet, shot 220 quarts from 2,350-2,460 feet, twice acidized, initial production 125 bbls. per day pumping.

Ector County

Westbrook's No. 2 Addis, dry and abandoned 4,202 feet, elevation 2,958 feet; No. 3 Addis, abandoned location.

Glasscock County

Bates, Currie and others' (formerly Wahlenmaier Petroleum Co.) No. 1 Boyd, dry and abandoned 3,656 feet, elevation 2,705 feet.

Howard County

Illinois Oil Co.'s No. 1 Logan, top pay

(Continued on Page 59)

Nine Wildcat Locations Staked in East Texas; Test in Anderson County Most Important

By L. E. BREDBERG

DALLAS, Tex., Nov. 19.—Nine wildcat locations were staked in the East Texas district during the week, while four were abandoned, two in Cherokee County, one in Freestone County, and one in Morris County. The counties getting this week's locations were Hunt, Red River, Nacogdoches, Upshur, Anderson, Gregg, and Kaufman. Wells and others are to start a test 12 miles northast of of Nacogdoches on the Z. Ramblin farm in the J. Simpson Survey, Nacogdoches County; Bryant and Spear are drilling on the Jones farm in the J. Compton Survey in Hunt County. One mile south of Detroit in Red River County, Dinger is to drill a Woodbine test on the W. T. Norris farm in the Joseph Guest Survey. Wadley and others are to try again on the Shuttlesworth farm in the J. Dunn Survey, near where they recently got a dry hole.

Upshur County

Overton Refining Co. is to drill No. 4 Carter, northeast of the Van Field, Van Zandt County, near its extension producer.

Neil and McDowell and others have spudded on the Camp farm in the J. Swearingen Survey, north of Gulf Production Co.'s Davey and Royall test in the Camp Hill area. Ormsby Drilling Co. is starting a shallow test on the Elkhart State Bank lands in the P. Martin Survey, south of the Gulf test. Shallow showings in the Davey and Royall test prompted these tests. The Gulf test is going to the Woodbine sand but may be plugged back to test the shallow pay horizon if production is not found deeper.

O. T. Clark is to drill on the Williams farm in the D. Hill Survey, 3 miles northeast of Longview and east of the producing area in Gregg County.

Harrison and Abercrombie have rigged up rotary on the Morrison farm in the A. Lawson Survey, 4 miles southwest of Greenville in Hunt County, and L. P. Kean is to deepen a test on the J. B. Hunter farm in the R. Sowell Survey, 4 miles east of Terrell in Kaufman County. Bottom is 1,630 feet.

Anderson County

Gulf Production Co.'s No. 1 Davey and Royall, in the M. Rogers Survey, in the Camp Hill area, Anderson County, topped the Austin chalk at 4,879 feet and is drilling at 4,905 feet in chalk. Elevation is 574 feet, making top of chalk minus 4,305 feet, which makes it 154 feet higher than top of the chalk in the Humble Oil & Refining Co.'s dry hole on the Southern Pine Lumber Co. lands to the north and 574 feet higher than top of the same formation in the Byrd-Frost and others' dry hole on the Scott farm near Slocum. This is probably the most important test in the district at present.

L. G. Priest's No. 1 Amelia Barnett, in the J. C. Hamer Survey, Hunt County, was credited with a showing of oil in the Eagleford at 2,851 feet and a showing of oil and gas in the Woodbine at 2,956 feet. The latter formation was topped at 2,928 feet, 198 feet higher than the same operator's No. 1 Love, dry hole. It is drilling at 3,025 feet with an elevation of 599 feet. It logged base of the Austin chalk at 2,488 feet.

Florence Oil Co. has abandoned its Woodbine sand test on the Sanger farm, east of the Van Field, Van Zandt County, at a total depth of 3,055 feet and has staked location for its No. 2 test, 316 feet west of the southeast corner of Pure Oil Co.'s Blackstock lease, and 151 feet south of the south line of that tract.

Cosden Oil Co. has abandoned its wildcat in eastern Henderson County at a total depth of 5,377 feet. It is on the Hurt and Miller lands, in the J. D. Hays Survey, 11 miles south of Chandler. Sand was topped from 5,075-95 feet.

EAST TEXAS FIELD

There were 48 completions registered in the East Texas Field during the week. A northeast edge well on the Bradley farm in Upshur County was abandoned by East Texas Petroleum Co., total depth 3,604 feet. One test was completed as a pumper and one swabbing. The number of new locations about tallied with the completions.

WILDCAT COMPLETIONS

Cherokee County

Fidelity Oil & Royalty Co.'s No. 1 Holcomb, dry and abandoned 5,198 feet, base Austin 5,106 feet. Jameson and others' No. 1 Mullineaux, top Woodbine 4,694 feet, dry and abandoned 4,735 feet.

Gregg County

Arkansas Fuel Oil Co.'s No. 8-C Lathrop, top sand 3,589 feet, total depth 3,614 feet, initial production 24 bbls. in 15 minutes through 2-inch tubing; No. 4-A McPherson, top sand 3,526 feet, total depth 3,551 feet, initial production 33 bbls. in 15 minutes through 2-inch tubing; No. 12 Rembert, top sand 3,461 feet, total depth 3,481 feet, initial production 41 bbls. in 15 minutes through 2-inch tubing. Atlantic and others' No. 10 M. Fisher, top sand 3,475 feet, total depth 3,524 feet, initial production 100 bbls. per hour through 2½-inch tubing. Gulf Production Co.'s No. 37 Shepherd, top sand 3,477 feet, total depth 3,507 feet, initial production 70 bbls. per hour through 2-inch tubing. Humble's No. 21 Armstrong, top sand 3,560 feet, total depth 3,590 feet, initial production 97 bbls. per hour through 2-inch choke. Magnolia Petroleum Co.'s No. 22 Everett, top sand 3,686, total depth 3,690 feet, initial production 120 bbls. per hour through 2-inch tubing; No. 15 Jones, top sand 3,626 feet, total depth 3,637 feet, initial production 75 bbls. per hour through 2-inch choke; No. 10 Richey, top sand 3,543 feet, total depth 3,584 feet, initial production 100 bbls. per hour through 2-inch tubing; No. 9 Rodden, top sand 3,552-75 feet, total depth 3,588 feet in red shale, initial production 118 bbls. per hour through 2-inch tubing.

Simms Oil Co.'s No. 3 B. Wood, top sand 3,518 feet, total depth 3,532 feet, initial production 70 bbls. per hour through 2½-inch tubing. Sinclair Prairie's No. 13 Isley, top sand 3,540 feet, total depth 3,564 feet in sandy shale, initial production 33 bbls. in 15 minutes through 2-inch tubing. Field, Bert and others' No. 1 Durham, top sand 3,567 feet, total depth 3,578 feet, initial production 45 bbls. in 30 minutes through 2½-inch tubing. Gulf Production Co.'s No. 14 Still, top sand 3,556 feet, total depth 3,616 feet in lime, initial production 7½ bbls. per hour pumping. Illinois Oil Co.'s No. 5 Bell, top sand 3,700 feet, total depth 3,704 feet, initial production 20 bbls. in 30 minutes through 2½-inch tubing. Roger Lacey's No. 6 Reynolds, top sand 3,550 feet, total depth 3,584 feet in shale and sand, initial production 20 bbls. per hour by heads. Stodel Oil Co.'s No. 4 Smith, top sand 3,624 feet, total depth 3,626 feet, initial production 30 bbls. in 30 minutes through 2-inch tubing. Sun Oil Co.'s No. 9 C. Brown, top sand 3,583 feet, total depth 3,646 feet, initial production 67 bbls. per hour through 2-inch tubing. Texas Co.'s No. 39 Cole, top sand 3,525 feet, total depth 3,555 feet, initial production 70 bbls. per hour through 2-inch tubing; No. 10 Walker, top sand 3,584 feet, total depth 3,589 feet, initial production 63 bbls. per hour through 2-inch tubing. Tide Water's No. 9 Bean, top sand 3,618-48 feet, total depth 3,650 feet in shale, initial production 10 bbls. in 10 minutes through 1-inch choke.

Freestone County

E. L. Smith Oil Co.'s No. 1 Coward estate, dry and abandoned 5,230 feet.

Morris County

Buchanan's No. 1 Staggers, elevation 363 feet, top Woodbine 4,269 feet, dry and abandoned 4,300 feet.

Rusk County

Bowles Oil Co.'s No. 1 Wells, top sand 3,589-3,735 feet, total depth 3,737 feet, initial production 61 bbls. per hour through 2-inch tubing. Gulf Production Co.'s No. 4 Baton, top sand 3,575 feet, total depth 3,660 feet in hard sand, initial production 40 bbls. per hour through three-quarters inch choke. Humble Oil & Refining Co.'s No. 129 Crim, top sand 3,644 feet, total depth 3,664 feet, initial production 95 bbls. per hour through 2½-inch tubing; No. 29-A S. S. Laird, top sand 3,593 feet, total depth 3,662 feet, initial production 45 bbls. per hour through 2½-inch tubing; No. 17 Peterson, top sand 3,647 feet, total depth 3,685 feet, initial production 75 bbls. per hour through 2½-inch tubing; No. 28 Peterson, top sand 3,596 feet, total depth 3,611 feet, initial production 75 bbls. per hour through three-quarters inch choke. Shell Petroleum Corp.'s No. 4-A T. Well, top sand 3,668 feet, total depth 3,714 feet in shale, initial production 38 bbls. in 30 minutes through 2-inch tubing. Atlantic's No. 27 Kinney, top sand 3,550 feet, total depth 3,645 feet in sandy shale, initial production 80 bbls. per hour through 2½-inch tubing; No. 34 Kinney, top sand 3,585 feet, total depth 3,644 feet in shale, initial production 80 bbls. per hour through 2-inch tubing; No. 11-BD Strickland, top sand 3,605 feet, total depth 3,652 feet, initial production 90 bbls. per hour through 2½-inch tubing.

Humble Oil & Refining Co.'s No. 6-B Barksdale, top sand 3,583-89 feet, total depth 3,655 feet in shale, initial production 11 bbls. per hour through 2-inch choke; No. 9 Bell, top sand 3,784 feet, total depth 3,810 feet, initial production 42 bbls. per hour through 2-inch choke.

East Central Texas Wildcats

Week Ending November 17

ANDERSON COUNTY

Gulf Prod. Co.'s No. 1 Dovey & Royall, 330 ft. from NE and NW of 172-ac. tract, M. Rogers Sur.
Drlg. 4,420 ft.; Pecan Gap 3,890-4,220 ft.

J. W. Luttes' No. 1 C. McKee, 2,640 ft. from N line of lease and survey and 330 ft. from W line of McKey 800-ac. tract.
Derrick.

Neil & McDowell et al's No. 1 Camp, 395 ft. from S and 150 ft. from E of SE 40 acres in J. Swearingen Sur.
Spudded.

Ormsby Drlg. Co.'s No. 1 Elkhart State Bank, 150 ft. N and E of 40-ac. tract, P. Martin Sur.
Location.

Trinity State Oil Co.'s No. 1 Trinity River, 1,370 ft. N and 1,200 ft. W of SW cor. of Sullenberger lands, Wm. Snyder Sur.
Rigged up.

BOWIE COUNTY

Tex-Ark. Oil Co.'s No. 1 Hamilton Estate, 660 ft. E and 350 ft. N lines, J. Milan Sur., 4 miles S of Red River.
Rigged up.

CHEROKEE COUNTY

J. B. Daniels' No. 1 Southern Pine Lbr. Co., 330 ft. from N and E lines of Thompson Sur. on S line of county.
Location.

H. L. Hunt Prod. Co.'s No. 1 Powell Lumber Co., 467 ft. from S and W lines of 52-ac. tract, 1 mile E and one-quarter mile N of discovery well, D. W. McNab Sur.
Location.

Jacksonville O. & G. Co.'s No. 1 H. D. Henderson, 660 ft. from N and W lines of 40-ac. tract out of Tankersley 104-ac. tract, 5 miles NE of Jacksonville on W side of railroad, J. Pineda Sur.
T.D. 752 ft.

South Gulf Oil Co.'s No. 1 Joe Bailey, center 164-ac. tract, 4 miles NE of Ponta, L. R. Rhodes Sur., Abstract No. 724.
T.D. 4,396 ft.; P.B. 4,183 ft.; S.D.

E. M. Thomason et al's No. 1 Addis Estate, 250 ft. S of survey and 150 ft. E of railroad, J. T. Jones Sur., 6 miles NW Alto.
S.D. 2,150 ft.

Wilson Stubbs Oil Co.'s No. 1 Rowborts, 450 ft. from S line, 150 ft. from W line of 100-ac. tract, 3 miles SW of Jacksonville, J. D. Wolfin Sur.
S.D. 1,550 ft.

ELLIS COUNTY

Beckner-Finley et al's No. 1 Coker, 2,900 varas along S line of grant from river and 1,700 varas N at R/A, R. De La Pena Sur.
Drlg. 375 ft.

FALLS COUNTY

Eureka Drlg. Co.'s No. 1 L. Davis, 150 ft. N of Blk. 19, and 1,970 ft. W of Blk. 18, Zora League, 8 miles N of Marlin.
16 gallons oil per day at 1,020 ft.; S.D. 1,155 ft.

FREESTONE COUNTY

Burris' No. 1 R. J. Johnson, NE cor. of a 95.5-ac. tract, W. M. C. Jones Sur.
S.D. 1,000 ft.

Dodwell's No. 1 Pasadena, 660 ft. out of NW cor. of tract, J. Graham Sur., 3½ miles NE of Teagues.
Top sand 4,411 ft.; drlg. 4,505 ft.; top Woodbine 4,385 ft.

Hailey-Young's No. 1 Cochran, 400 ft. N and W lines, D. Bullock Sur., 1 mile SE of Lima.
Location.

GREGG COUNTY

O. T. Clark's No. 1 Williams, 2,100 ft. from S and 2,400 ft. from W of D. Hill Sur., 3 miles NE of Longview.
Spudded.

HARRISON COUNTY

W. G. Boyd et al's No. 1 W. L. Rudd, no check; in sec. of 360-ac. tract and sur., W. D. Perry Sur.
Drlg. 1,125 ft.

HENDERSON COUNTY

Campbell and Chamberlain's No. 1 R. Ansley, 1,724 ft. W and 300 ft. S of SE cor. of M. Matthews Sur., N. H. T. Thompson Sur.
Elev. 268 ft.; S.D. 2,650 ft.

Cosden Oil Co.'s No. 1 Hunt & Miller, 990 ft. from N and 1,340 ft. from W lines of J. D. Hays Sur., 11 miles S of Chandler.
Drlg. 5,330 ft.

Crosby and Pulp's No. 1 M. T. Dobbs, NW cor. of east Dobbs 100-ac. tract, 4 miles E of Malahoff and S of Railroad, George Aldrick Sur.
Austin 3,456-3,610 ft.; drlg. 3,890 ft.

HOPKINS COUNTY

D. A. Hale et al's No. 1 L. M. Hall, 200 ft. from N and E lines of 70-ac. tract, 1 mile SE of Miller Gros, A. Caro Sur.
S.D. 1,485 ft.

HUNT COUNTY

Cauble & Thompson's No. 1 Reed, 330 ft. N of northerly NE cor. of C. B. Payne Sur., but in F. Thweatt Sur., 3 miles SE of Greenville.
Derrick.

G. S. & S. Co.'s No. 1 O. Popper.
S.D. 2,335 ft.

J. C. Hall's No. 1 Parrish, C of 100-ac. tract, N. Delaney Sur., 5 miles N of Lone Oak.
Moving in derrick.

Harrison-Abercrombie's No. 1 Morrison, 1,757 ft. from E and 470 ft. from S lines, A. Lawson Sur., 5 miles SW of Greenville.
Rigged up.

L. G. Priest's No. 1 Amelia Barnett, 1,975 ft. from W line, 320 ft. from S line of J. C. Hamer Sur.
S.D. 2,660 ft.

Winnans' No. 1 J. R. Phillips, 320 ft. from S line and 960 ft. from W line of tract and survey, W. J. James Sur.
S.D. 40 ft.

(Continued on Page 61)

Manahan Oil Co.'s No. 3 Deason, top sand 3,645 feet, total depth 3,685 feet in shale, initial production 25 bbls. per hour through 2-inch tubing. Marathon Oil Co.'s No. 11 Graham, top sand 3,640 feet, total depth 3,657 feet, initial production 80 bbls. per hour through 2-inch tubing; No. 12 Mason, top sand 3,604 feet, total depth 3,663 feet in shale, initial production 20 bbls. in two hours swabbing; No. 4 Van Zandt, top sand 3,627 feet, total depth 3,630 feet, initial production 20 bbls. in two hours swabbing. Milford Oil Co.'s No. 6 Thrash, top sand 3,715 feet, total depth 3,755 feet, initial production 100 bbls. per hour through 2-inch tubing. Shell Petroleum Corp.'s No. 12-A Brooks, top sand 3,670-3,748 feet, total depth 3,758 feet, initial production 40 bbls. in 30 minutes through 2-inch tubing. Sonbar Oil Co.'s No. 8 Finney, top sand 3,633 feet, total depth 3,720 feet in shale, initial production 91 bbls. per hour through 2½-inch tubing. Stanolind Oil & Gas Co.'s No. 11 Millstead, top sand 3,657 feet, total depth 3,754 feet, initial production 25 bbls. in 30 minutes through 2-inch tubing. Tex-Jersey Oil Co.'s No. 2 Eaton, top sand 3,757 feet, total depth 3,802 feet, initial production 35 bbls. in 30 minutes through 2-inch tubing.

Smith County

P. C. H. Oil Co.'s (formerly McKennie-Barr) No. 1 M. Green estate, top sand 3,805 feet, total depth 3,808 feet, initial production 30 bbls. per hour through 2-inch tubing. McMurray Brothers' No. 1 Rich, top sand 3,686 feet, total depth 3,687 feet, initial production 20 bbls. in 30 minutes through 2-inch tubing. Sun Oil Co.'s No. 24 Knight, top sand 3,652 feet, total depth 3,657 feet, initial production 64 bbls. per hour through 2-inch tubing. Texas Co.'s No. 14 Blackwell, top sand 3,687 feet, total depth 3,709 feet, initial production 150 bbls. per hour through 2-inch tubing.

Upshur County

East Texas Petroleum Co.'s No. 5 Bradley, top sand 3,597-3,600 feet, total depth 3,604 feet, swabbed salt water, dry and abandoned. Humble Oil & Refining Co.'s No. 23 Holland, top sand 3,579 feet, total depth 3,623 feet, initial production 103 bbls. per hour through 2-inch tubing.

SIR DONALD MANN DIES

TORONTO, Ontario, Nov. 17.—Sir Donald Mann, for many years an outstanding figure in the Canadian railroad industry in partnership with the late Sir William Mackenzie, died here on November 10, aged 81. He was extensively interested in oil operations in the Canadian West, and also drilled several deep tests in the Toronto area.

G. R. JORDAN DIES

G. R. Jordan, land man for Roeser & Pendleton, Inc., died in Palestine, Tex. He is survived by his wife, and one son, Joseph M. Jordan of Tulsa.

West Texas Fields

(Continued from Page 57)

2,565 feet, total depth 2,890 feet, shot 230 quarts from 2,560-2,645 feet and 240 quarts from 2,775-2,890 feet, initial production 127 bbls. per day swabbing. California Co.'s No. 2 Bell, total depth 2,849 feet, shot 200 quarts from 2,570-2,790 feet, initial production 102 bbls. Fred Hyer's No. 1 Clay, top pay 1,605 feet, total depth 1,802 feet, initial production 27 bbls. per day pumping. Merrick and Lamb's No. 19 Clay, top pay 1,807 feet, total depth 1,900 feet, initial production 20 bbls. per day pumping.

Jones County

Texas Inland Oil Co.'s No. 2 Sellers, top pay 1,877 feet, total depth 1,895 feet, acidized, initial production 25 bbls. of oil and 1 bbl. of water per day.

Pecos County

Adams and others' No. 1 Schearer, abandoned location; No. 2 Masterson, abandoned location. Gulf Production Co.'s No. 2 White and Baker, dry and abandoned 1,461 feet. Marathon Oil Co.'s No. 5-G Yates, top pay 1,180 feet, total depth 1,358 feet, initial production 165 bbls. per hour.

Runnels County

Art Tucker's No. 5 McMillan, top pay 2,500 feet, total depth 2,515 feet, initial production 80 bbls. per day swabbing.

Ward County

Bentley and others' No. 1 Emery, operations abandoned 2,710 feet. Richardson's No. 6-B Johnson, top pay 2,342 feet, total depth 2,575 feet, initial production 637 bbls. per day. California Co.'s No. 14 Durgin, top pay 2,346 feet, total depth 2,543 feet, initial production 422 bbls. per day.

Upton County

Texas Pacific Coal & Oil Co.'s No. 3-C Lane, top pay 2,315 feet, total depth 2,355 feet, initial production 120 bbls. per day pumping.

Winkler County

Sinclair Prairie Oil Co.'s No. 4-B Scarborough, top pay 2,938 feet, total depth 3,020 feet, initial production 45 bbls. per day. Magnolia Petroleum Co.'s No. 8 Scarborough, top pay 2,860 feet, total depth 2,915 feet, initial production 156 bbls. per day.

PANHANDLE COMPLETIONS

Gray County

Dixon Creek Oil Co.'s No. 2 Benedict, top pay 3,256 feet, total depth 3,280 feet, shot 310 quarts from 3,200-75 feet, initial production 18 bbls. per day pumping. Kewanee Oil & Gas Co.'s No. 7 Smith, top pay 3,195 feet, total depth 3,256 feet, shot 265 quarts from 3,156-3,256 feet, initial production 278 bbls. per day pumping. Mazda-Shell Petroleum Corp.'s No. 4 Combs-Worley, top pay 2,962 feet, total depth 3,085 feet, initial production 823 bbls. per day pumping. Texas Co.'s No. 14 Faulkner, top pay 3,000 feet, total depth 3,014 feet, initial production 132 bbls. per day.

Hutchinson County

Stanolind Oil & Gas Co.'s No. 7-B Ware, top pay 3,085 feet, total depth 3,125 feet, shot with 338 quarts from 2,995-3,125 feet, initial production 73 bbls. per day, pumping. U-Tex Oil Co.'s No. 2-B Ware, top pay 3,040 feet, total depth 3,100 feet, shot with 250 quarts from 3,015-3,100 feet, initial production 200 bbls. per day, pumping.

Wheeler County

Champlin Refining Co.'s No. 5 Williams, top pay 2,450 feet, total depth 2,540 feet, initial production 138 bbls. per day, pumping. Magic Oil Co.'s No. 2 Walker, top pay 2,426 feet, total depth 2,488 feet, initial production 88 bbls. Phillips and others' No. 4 Lela, top pay 2,516 feet, total depth 2,536 feet, initial production 79 bbls. Shell Petroleum Corp.'s No. 4 Bush, top pay 2,465 feet, total depth 2,508 feet, initial production 498 bbls.; No. 5 D'Spain, top pay 2,368 feet, total depth 2,498 feet, initial production 503 bbls.

WICHITA FALLS COMPLETIONS

Archer County

Hamilton's No. 7 Arnold, top pay 1,180 feet, total depth 1,194 feet, initial production 45 bbls.; No. 8 Arnold, top pay 1,166 feet, total depth 1,179 feet, initial production 25 bbls.; No. 22 Pace, top pay 1,164 feet, total depth 1,175 feet, initial production 35 bbls. Hamilton and others' No. 2 Powell, dry and abandoned 1,250 feet. Justice Oil Co.'s No. 4 Justice, dry and abandoned 1,089 feet. Kittrey Oil Co.'s No. 5 Carr, top pay 1,398 feet, total depth 1,405 feet, initial production 150 bbls. Perkins & Cullum's No. 115 Falls County, top pay 1,114 feet, total depth 1,120 feet, initial production 75 bbls. Pois & Schultz' No. 1-B Archer County, dry and abandoned 1,010 feet. Underwood & Campbell's No. 6-B Campbell, top pay 989 feet, total depth 995 feet, initial production 25 bbls. United Producers Co.'s No. 1 Duckworth, dry and abandoned 1,458 feet. Abercrombie's No. 1 fee, dry and abandoned 1,850 feet. Clower's No. 1 McMurtry, dry and abandoned 1,002 feet. Continental Oil Co.'s No. 7-C Falls County, top pay 1,114 feet, total depth 1,116 feet, initial production 74 bbls. Fain & McGaha's No. 24 Arnold, top pay 1,162 feet, total depth 1,177 feet, initial production 100 bbls.; No. 25 Arnold, top pay 1,152 feet, total depth 1,177 feet, initial production 300 bbls. Fain & McGaha and Humble Oil & Refining Co.'s No. 43 Logan, top pay 1,103 feet, total depth 1,122 feet, initial production 150 bbls. Fain & McGaha's No. 20 Arnold, top pay 1,172 feet, total depth 1,193 feet, initial production 50 bbls.

Cooke County

Headington's No. 1 Martin, dry and abandoned 1,053 feet. Ruwalt and others' No. 1 Andress Brothers, top pay 1,386 feet, total depth 1,395 feet, initial pro-

Drastic Proration Schedule in Michigan; New Field Virtually Without Outlet

By PAUL A. ELLIOTT
Staff Correspondent, Michigan Fields

MUSKEGON, Mich., Nov. 19.—Michigan's most drastically curtailed schedule of proration was adopted last week in recognition of sharply declining markets and circumstances which have left one of the most active new fields virtually without an outlet. The minimum exemption was left at 50 bbls. but the allowable above the minimum was reduced from 5 to 1½ per cent.

Porter-Midland

Pure Oil Co. drilled three wells into the Dundee in Porter Township, Midland County. Largest was No. 12 Mina Narmore, SE NE SE Section 16-13n-1w, which made 130 bbls. a day by heads at a total depth of 3,413 feet. No. 3 Floyd Younglove, SE SE SW Section 17, and No. 6 Charles Hill, SW SE NE Section 18, filled up with oil but failed to flow and will be treated. The former was drilled to 3,414 feet and the latter to 3,437 feet. Fred Turner and others got a hole full of oil in No. 1 Roy Miller, SE SE SW Section 8, Porter, which topped the Dundee at 3,380 feet, struck pay from 3,398-3,405 feet, and stopped drilling at 3,427 feet. It will be treated. Charles W. Teater's No. 3 Joseph M. Wale, NW NE NW Section 22, will make about 75 bbls. a day after treatment. Northern Oil & Gas Corp.'s No. 3 Hattie M. Hodge, Section 18, was abandoned.

Drilling activity is at a low ebb in Porter Township, with only 25 active projects listed, about 6 no more than rigs on the ground or erected.

Greendale-Midland

Pure Oil Co. completed No. 3 Arthur N. Ward, NW SW SE Section 7-14n-2w, Greendale Township, as a new Dundee producer which swabbed about 60 bbls. in four hours from a depth of 3,579 feet. It will be treated.

Ogemaw County

After a heavy initial flow in the upper Traverse formation, Youman-Dalton Oil Co.'s No. 1 E. Hustead, NW NW SE Section 36-22n-2e, West Branch Township, Ogemaw County, settled down to about 200 bbls. a day after treatment. Theodore Oil Co.'s No. 3 Ogemaw Country Club, NW SW SE Section 20, same township, made about 200 bbls. initial in the Dundee after treatment. McClanahan Oil Co.'s No. 1 C. Conard, NW NW NE Section 22-22n-3e, Mills Township, topped Dundee at 2,594 feet, struck a show at 2,613 feet but drilled into bottom water and probably will be abandoned.

Two tests, one drilled into the Dundee as an estimated 50 to 75-bbl. producer and the other into the upper Traverse, were shut in for lack of a market. They are Muskegon Development Co.'s No. 1 Frank Estey, NW NW SW Section 28, and Weber Oil Co.'s No. 1 L. Doran, SE SW SE Section 27, both in West Branch Township.

Eight other tests were active in the county, one in Ogemaw and seven in West Branch Township.

Isabella County

Chippewa Oil & Gas Co.'s No. 1 W. Cook, C NE SW Section 2-14n-6w, Broomfield Township, drilled in with a natural flow of 200,000 feet of gas from the Michigan stray sand last week was multiplied by 10 to make a 2,000,000-foot gasser after a shot.

Old Dutch Oil & Gas Co.'s No. 1 James Walton, C SE NW Section 36-16n-4w, Vernon Township, had a show at 1,302 feet but was completed dry and abandoned at 1,313 feet as a Michigan gas test. The Wittmer company struck a Dundee show of oil and gas in its No. 1 Merrill D. Dunn, NW Section 13, Isabella Township, in the Rosebush Pool between the Leaton and Vernon Pools, indicating another producer. Two other tests are active in this area.

Michigan Gas & Oil Corp.'s No. 1 P. J. Marthey, the old discovery well of the Leaton Pool, in Section 19-15n-3w, Denver Township, struck water at 4,380 feet in the Monroe formation and probably will be abandoned. Four other Isabella County tests were nearing the Dundee in three different townships and two were nearing Michigan gas sands.

Montcalm County

Daily Crude Oil Co. drilled its No. 4 H. P. Christensen test, SE SW SE Section 2, Home Township, into the upper Traverse last week topping the limestone at 3,035 feet and striking a show but also water at a total depth of 3,100 feet.

Wildcat Developments

George Henry Flynn Oil & Gas Corp.'s No. 1 Samuel P. Conkling, C SW NW Section 4-8n-9e, Oregon Township, Lapeer County, was dry in the Berea.

Goll, Graves & Mechling's No. 1 William B. Richmond, SW NE SE Section 28-17n-10e, McKinley Township, Huron County, also was dry through the Dundee at a depth of more than 3,000 feet.

Hopes of the Havens Oil & Gas Syndicate to open an oil field in the vicinity of Detroit were dashed when the No. 1 Alice M. Schmidt, SW NE SE Section 3-2s-8e, Canton Township, Wayne County, was dry through the Dundee. Limestone was topped at 518 feet and bottomed at 613 feet with water at 629 feet.

Mellon-Pollock Oil Co. and the Wittmer Co. were unsuccessful in No. 1 Elwyn J. Johnson, SW SE NE Section 1, Richmond Township, Osceola County, northwest of the Austin Township, Mecosta County, gas field, when water was encountered at 3,860 feet and operations were suspended.

Western Michigan

Lima Oil Corp.'s No. 1 W. R. Angell and Harry C. Spillman well, SE NE NW Section 22-10n-16w, Muskegon Township and County, which struck a flow of about 45,000 feet of gas in lower Traverse, was shot. A. S. Cochran was considering deepening No. 3 Frank J. Durham, S SW Section 15, same township, which quit producing oil in the upper Traverse after being estimated good for 50 to 100 bbls. a day at about 1,700 feet. West Michigan Consumers Co. started to deepen the former Dixie Oil Co.'s No. 6 Fred Figge, SW SW NW Section 9, Muskegon Township, from an upper Traverse oil well at about 1,600 feet to the Monroe gas sands.

duction 115 bbls. of oil and 10 bbls. of water.

Jack County

Tate and others' No. 1 Gay, dry and abandoned 600 feet.

Wichita County

Oakes and others' No. 1 Dobie, dry and abandoned 2,305 feet. Petroleum Producers Co.'s No. 53 Allen & Kemp, top pay 455 feet, total depth 465 feet, initial production 8 bbls.; No. 54 Allen & Kemp, top pay 455 feet, total depth 462 feet, initial production 4 bbls. Bain, trustee's No. 1 Williams, dry and abandoned 511 feet.

Wilbarger County

Clark & Dunaway's No. 3 Waggoner, top pay 1,218 feet, total depth 1,220 feet, initial production 25 bbls.

Young County

Hinson-Tidwell and Lindsey's No. 1 Minkley, dry and abandoned 3,345 feet. McLester Oil Co.'s No. 1 Packard, top pay 2,715 feet, total depth 2,716 feet. initial production 200 bbls. Nash and Windfohr's No. 15 Graham-Vick, top pay 2,580 feet, total depth 2,597 feet, initial production 205 bbls. Nix' No. 1 Watson, dry and abandoned 714 feet. Warren's No. 1 Newman, dry and abandoned 400 feet. Wolfe's No. 1 Hawkins, dry and abandoned 628 feet.

Computation of Oil-Gas Ratio in Natural Gasoline

(Continued from Page 32)

tor .373 by 170 gives pounds of oil per mol of gas; dividing the result by the product 8 1/3 × .80 gives gallons of oil per mol of gas; and multiplying this by the factor 1,000/379, gives the desired result; 24.5 gallons of absorption oil to be run for each 1,000 cubic feet of gas in order to meet the condition of 95 per cent n-pentane absorption.

Data concerning the product absorbed in the oil, and the residue gas from the absorber, are computed from the two columns at the right in the table. Each component fraction may be multiplied by its respective molecular weight, and the total converted from 100 mols of rich gas to whatever basis is desired to find the weight of product. The volume content of the residue gas is found by dividing each fraction by the total of 91.29.

This example of absorber calculation represents but one of the many types which may be encountered. Here the pressure and temperature were decided and the L/V ratio was made the factor of absorber effeciency. There are other methods of arriving at these results, although the basic facts will apply to all examples.

This is the third of a series of articles concerning the application of mathematical calculations to operations in natural gasoline manufacture.

West Texas Wildcats

(Continued from Page 57)

DAWSON COUNTY

Ray Albaugh et al's No. 1 John Robinson 1,320 ft. from N line, 1,320 ft. from W line of Sec. 46, Blk. M, E.L.R.R. Sur.
S.D. 3,300 ft.

ECTOR COUNTY

Black et al's No. 1 Connell, 330 ft. from S and 2,310 ft. from W, Sec. 1, Blk. B-16, P.S.L. Sur.
Drlg. 3,342 ft.

Harrison et al's No. 3 Addis, 1,650 ft. from N line and 2,200 ft. from W line of Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur.
Drlg. 1,725 ft.

Landreth Prod. Co.'s No. 1 Johnson, 440 ft. from N and W, Sec. 47, Blk. 43, Twp. 1s, T.&P. Sur.
Drlg. 1,450 ft.

Landreth Prod. Co.'s No. 1 Clarence Scherbauer, 660 ft. from S and E. lines of Sec. 20, Blk. 44, Twp. 1n, T.&P. Sur.
P.B. 4,145 ft.; testing water shut-off.

Stanolind Oil & Gas Co.'s No. 8 J. M. Cowden, 440 ft. from S line and 440 ft. from W line, Sec. 34, Blk. 43, Twp. 1n.
S.D. 280 ft.

Sunray & Llano's No. 2 Jones, 2,310 ft. from N and E. Sec. 6, Blk. 44, Twp. 3s.
Drlg. 1,115 ft.

EDWARDS COUNTY

Harry Adams' No. 1 Holman, 1,650 ft. from N and 330 ft. from E, Sec. 22, C.C.S.D. &R.G.N.G. Sur.
S.D. 540 ft.; show oil 526-35 ft.

EL PASO COUNTY

Mesa Oil Co.'s No. 1 Coronado Valley.
S.D. 1,415 ft.

FISHER COUNTY

Merry Bros. and Perrini, Inc., et al's No. 1 Dean, 660 ft. from S and E. Sec. 2, Blk R., W. E. Richardson Sur.
Set csg. 3,108 ft.

Merry Bros. and Perrini's No. 1 Howard, 1,320 ft. from N and 660 ft. from E, Sec. 180, Blk. 2, H.&T.C. Sur.
Drlg. 420 ft.

Roeser & Pendleton's No. 2 Hill, 2,310 ft. from N and 330 ft. from E, Sec. 203, B.B.B.&C. Sur.
Drlg. 245 ft.

Southern Oil Co.'s No. 2 King, 230 ft. from S and W, Sec. 193, Blk. 1, Location.

Texas Co.'s No. 1 First National Bank of Rotan, 330 ft. N and E of NW Cor. Sec. 210, B.B.B.&C. Sur.
T.D. 3,244 ft.; P.B. 3,226 ft.; acidized; now testing.

GLASSCOCK COUNTY

Currie et al's No. 1 Currie, 330 ft. from S and W, Sec. 10, Blk. 35, Twp. 4s, T.&P. Sur.
Cellar.

John L. Moore et al's No. 1 J. S. McDowell, 1,980 ft. from N line and 660 ft. from E line of Sec. 22, Blk. 34, Twp. 2s, T.&P. Sur.
Drlg. 6,787 ft.

World Oil Co.'s No. 3-C McDowell, 2,310 ft. from N and W, Sec. 21, Blk. 34, Twp. 2s, T.&P. Sur.
Underreaming 10-in. at 890 ft.

HOWARD COUNTY

F. H. E. Oil Co.'s No. 2 Dodge, 330 ft. from N and 990 ft. from E, Sec. 15, Blk. 30, Twp. 1s, T.&P. Sur.
Drlg. 1,137 ft.

Iron Mountain Oil Co.'s No. 1 Read, 330 ft. from E line, 330 ft. from S line, Sec. 46, Blk. 30, Twp. 1n, T.&P. Sur.
Drlg. 2,700 ft.; 1,000 ft. oil in hole.

Mixon et al's No. 1 Capps & Lucas, 4,310 ft. from S and 330 ft. from W, Sec. 17, Blk. 29, Twp. 1n, T.&P. Sur.
Drlg. 2,378 ft.

Siegel's No. 1 Foster, 990 ft. from S and 330 ft. from W, Sec. 43, Blk. 29.
Drlg. 420 ft.

IRION COUNTY

Melrose Oil Co.'s No. 1 J. D. Sugg, 1,700 ft. from the E line and 308 ft. from the S line of Sec. 25, Blk. 3, H.&T.C. Sur.
S.D. 270 ft.

JEFF DAVIS COUNTY

C. M. Joiner's No. 1 Jones & Coffield, 770 ft. from N and 1,322 ft. from E, Sec. 8, Blk. 3, H.&T.C. Sur.
Standard tools.

JONES COUNTY

Campbell et al's No. 1 Enevill, 1,400 ft. from N and 270 ft. from W, Sec. 2, M.E.&P. Sur., ½ mile S of Anson.
Drlg. 880 ft.

Byram et al's No. 1 McWright, 200 ft. from N and 660 ft. from W of SW Sec. 5, Blk. 15, Twp. 1s, T.&P. Sur.
Location.

Capitan Oil Co.'s No. 1 Geiger, 220 ft. from S and E of 60-acre tract, S. Andrews Sur.
Drlg. 1,210 ft.

Chantz et al's No. 1 Faver, 170 ft. from S and E of Subdiv., A. Thompson Sur. No 10.
S.D. 2,010 ft.

Condor Pet. Co.'s No. 2 Holt, 660 ft. from S and 330 ft. from E, Sec. 4, Blk. 20.
Drlg. 160 ft.

Hammer & Beam's No. 1 Sheppard, 1,308 ft. from N and 200 ft. from E of 130-acre tract, D. Minter Subdv. No. 53.
Drlg. 1,532 ft.

Nugent Oil Co.'s No. 1 Wilson, 3,000 ft. from N and 300 ft. from E, Sec. 1, Blk. 2, T.&N.O. Sur.
Drlg. 75 ft.

Ray & Staniforth's No. 1 Stewart, 600 ft. E of Texas Inland Oil Co.'s No. 1 Inland.
Drlg. 1,715 ft.

Richards et al's No. 1 Ransom, 200 ft. from N and E. Sec. 244, B. M. Clopton Sur.
S.D. 700 ft.

Southern Oil Co.'s No. 2 Cade, 330 ft. S and 330 ft. E in Sec. 17, Blk. 19, T.P. Sur.
T.D. 2,300 ft.; underreaming 8-in.

Texas Inland Oil Co.'s No. 1 Boss, 330 ft. from N and W of N 311 acres of S 611 acres, John Wall Sur. No. 272.
Drlg. 2,545 ft.

LOVING COUNTY

California Co.'s No. 4 Allen, 1,320 ft. from NE and 2,310 ft. from SE Sec. 90, Blk. 1, Machine.

D. C. Evans' No. 1 W. D. Johnson, 2,310 ft. from N and 1,650 ft. from W. Sec. 13, Blk. 57, Twp. 1, T.&P. Sur.
S.D. 2,030 ft.; 1 bbl. sulphur water.

PECOS COUNTY

Gulf Prod. Co.'s No. 3 White & Baker, SE cor. of N half Sec. 4, Block 207, T.C. Ry. Sur.
Drlg. 755 ft.

C. S. Messenger's No. 2 Rand Jones, 1,935 ft. from S line and 1,013 ft. from W line of Sec. 5, Blk. 9, H.&G.N. Sur.
Oil 2,122 ft.; drlg. 2,245 ft.

Trans-Tex. Oil Co.'s No. 1 Caldwell, 330 ft. from E line and 330 ft. from S line of Sec. 17, Blk. 40, Twp. 9, T.&P. Sur.
Drlg. plug 1,301 ft.

REAGAN COUNTY

S. P. Kirschner and White's No. 1 W. A. White and McIntosh, 720 ft. from E and 600 ft. from N of Sec. 1,323, E.L.R.R. Sur.
S.D. 3,165 ft.

Skelly Oil Co. et al's No. 1-D E. S. Grayson, 1,980 ft. from N line and 660 ft. from W line of Sec. 33, Blk. 8, University Land Sur.
Drlg. 7,106 ft.

REEVES COUNTY

J. E. Cunningham's No. 1 Altman, 2,310 ft. from N line and 1,980 ft. from E line of Sec. 1, C. C. Wyatt Sur.
S.D. 1,571 ft.; to rig up rotary.

Herbert Oil Co.'s No. 1 Williams & Walker, 5,280 ft. from S and 1,320 ft. from E, Sec. 17, Blk. 6, H.&G.N. Sur.
Location.

RUNNELS COUNTY

Hall Oil Co.'s No. 1 Brevard, 160 ft. N and W in Subdiv. 21, D. Diaz Sur.
T.D. 2,448 ft.; underreaming 6-in.

Melrose Oil Co.'s No. 1 L. P. Woods, 150 ft. from NE lines and 2,475 ft. from W line of survey, Willett Holmes Sur. No 100.
T.D. 1,495 ft.; drlg. up joint.

R. Wells' No. 1 James, 396 from N and 825 ft. from E of James tract in Sec. 16, D. Diaz Sur.
Drlg. 720 ft.

SCHLEICHER COUNTY

John M. Cooper et al's No. 1 Bert Page, 1,290 ft. from N line, 1,470 ft. from W line of Sec. 40, Blk. L, G.H.&S.A. Sur.
S.D. 5,866 ft.

Humble Oil & Ref. Co.'s No. 1 Ike Honig, 2,640 ft. from N line and 2,650 ft. from E line of Sec. 38, Blk. M, G.H.&S.A. Sur.
Drlg. 5,845 ft.

W. C. Proctor et al's No. 1 Judkins & Spencer, 1,320 ft. from S and W of W. W. Russell grant.
Rig.

SCURRY COUNTY

Coffield & Guthrie's No. 1 Holliday, 2,310 ft. from N and 330 ft. from W, Sec. 120, Blk. 97, H.&T.C. Sur.
Drlg. 770 ft.

STERLING COUNTY

John L. Moore's No. 1 McIntire, 660 ft. from S and E. Sec. 35, Blk. 33, H.&T.C. Sur.
S.D. 2,660 ft.

Merry Bros. & Perrini's No. 1 Standsberry, 1,980 ft. from N and E Sec. 20, Blk. 30, W.&N.W. Sur.
Location.

STONEWALL COUNTY

Merry Bros. and Perrini et al's No. 1 Williams, C SW of SW, Sec. 6, Blk. C, A B &M. Sur.
Drlg. 2,500 ft.

SUTTON COUNTY

Texas et al's No. 1 Mower, 1,980 ft. from S and W of Sec. 39, Blk. 5, T.W.&N.G. Sur.
Spudded.

TAYLOR COUNTY

Dunnigan Bros. et al's No. 2 Hunter, 850 ft. from S and 250 ft. from W of Subdiv. No. 14, Willis Sur.
Fishing 2,235 ft.

TERRELL COUNTY

W. A. Sudderth's No. 1 Phelps, 2,157 ft. from N line and 2,482 ft. from the W line of Sec. 5, Blk. 4-A, G. W. Turley Sur.
T.D. 5,635 ft.; C.O.

UPTON COUNTY

Gulf Prod. Co.'s No. 12 Crier-McElroy, 1,320 ft. from N and E Sec. 198, Blk. F.
Drlg. 1,645 ft.

Gulf Prod. Co.'s No. 103 McElroy, 1,980 ft. from S and 660 ft. from W, Sec. 197, Blk. F, C.C.S.D.&R.G.N.G. Sur.
T.D. 10,978 ft.; set tubing and testing.

Williams & Williams Drlg. Co.'s No. 1 Robbins, 1,600 ft. from S and 1,900 ft. from E, Sec. 4, G.C.&S.F. Sur.
S.D. 2,040 ft.

WARD COUNTY

Atlantic Oil Prod. Co.'s No. 1 Miller, 463 ft. from NW and 504 ft. from NE Sec. 3, J. C. Russell Sur.
Drlg. 2,310 ft.

Alexander's No. 1 Richter, 1,650 ft. from NW, 1,170 ft. from NE line of Sec. 37, Blk. 34, H.&T.C. Sur.
S.D. 1,700 ft.

Bradford et al's No. 1 E. R. Allen, 660 ft. from NW line and 551 ft. from NE line Sec. 11, H.&T.C. Sur.
Fishing 500 ft.

Cook Drlg. Co.'s No. 1 Wood, 330 ft. from NW and SW. Sec. 5, W. F. Stewart Sur.
T.D. 2,548 ft.; testing.

Plains Prod. Co.'s No. 1 J. J. McGregor, 660 ft. from SE line, 660 ft. from SW line Sec. 169, Blk. 34, H.&T.C. Sur.
Drlg. 4,425 ft.; oil 4,100-02 ft.; gas 4,100 ft.

Postellio & Caprito's No. 1 Purcell, 330 ft. from NE and 990 ft. from NW, Sec. 17, Blk. 34, H.&T.C. Sur.
Drlg. 2,123 ft.

Stanolind Oil Corp.'s No. 2 Pure-Bennett, 1,650 ft. from NW and 2,310 ft. from SW Sec. 16, Blk. 34, H.&T.C. Sur.
Spudded and S.D.

Tex-Mex Pet. Corp.'s No. 1 Pure-Bray, 1,980 ft. from NE and 660 ft. from NW, Sec. 6, Blk. 5, H.&T.C. Sur.
Elev. 2,493 ft.; show oil 667-76 ft.; drlg. 820 ft.

West Texas O. & R. Co.'s No. 1-C University, 330 ft. from N and E, Sec. 6, Blk. 16, Location.

WINKLER COUNTY

Harry Adams' No. 2 Scarborough, 990 ft. from N line and 990 ft. from W line, Sec. 3, Blk. 77, P.S.L. Sur.
Location.

Jeffries et al's No. 1 Brown & Altman, 2,310 ft. from S and W, Sec. 6, Blk. B-5.
Set csg. 2,375 ft.

Dr. Jeffries et al's No. 1 Underwood, 330 ft. from S and 2,310 ft. from E, Sec. 26, Blk. B-3.
To deepen from 400 ft.

J. C. Maxwell's No. 1 Clapp, 1,980 ft. from N and 330 ft. from W, Sec. 37, Blk. 26, P.S.L. Sur.
Drlg. 1,420 ft.

Magnolia Pet. Co.'s No. 4 Walton, 330 ft. from S and W, Sec. 1, Blk. 26.
Drlg. 1,070 ft.

R. S. Mathews et al's No. 1 Evans, 1,320 ft. from N line and 1,320 ft. from W line, Sec. 46, Blk. 75, P.S.L. Sur.
S.D. 110 ft.

Mid-Continent Pet. Corp.'s No. 1 Howe, 2,310 ft. from N and 330 ft. from W, Sec. 12, Blk. 26, P.S.L. Sur.
Elev. 2,873 ft.; rotary.

Old Richardson's No. 1 Hill, 1,980 ft. from E line, 660 ft. from S line, Sec. 18, Blk. B-11, P.S.L. Sur.
Drlg. wire line 3,432 ft., with oil in hole.

Sayre Oil Co.'s No. 1 Leek, 330 ft. from S and E, Sec. 2, Blk. 26, P.S.L. Sur.
Machine.

Sayre Oil Co.'s No. 2 Howe, 330 ft. from N and W, Sec. 12, Blk. 26, P.C.L. Sur.
Location.

Skelly Oil Co.'s No. 1 Holley, 1,320 ft. from N and 2,200 ft. from E, Sec. 25, Blk. B-11, P.S.L. Sur.
Derrick.

Sinclair Prairie Oil Co.'s No. 1 Cummings, 2,310 ft. from N and 330 ft. from E, Sec. 11, Blk. 26, P.S.L. Sur.
Drlg. 960 ft.

Texas Panhandle Wildcats

Week Ending November 19

CARSON COUNTY

McGill's No. 1 Cooper, 330 ft. from S and W of N½ NE Sec. 4, Blk. 9, I.&G.N. Sur.
Drlg. 2,620 ft.

McClintock et al's No. 1 Jordan, 660 ft. N, 413 ft. W, Sec. 105, Blk. 4, I.&G.N.
Rig.

CHILDRESS COUNTY

Humble Oil & Ref. Co.'s No. 1 B. P. Smith, 1,327 ft. from S line and 1,327 ft. from E line of Sec. 27, H.&G.N. Sur., Blk. 9, S.D. 5,217 ft.

COLLINGSWORTH COUNTY

Andrews & Kerr's No. 1 Gideon-Bell, C NW NE Sec. 6, Blk. 13, H.&G.N. Sur.
Drlg. 990 ft.

DALLAM COUNTY

Eben Warner's No. 1 Jarbie, 1,520 ft. from S line, 415 ft. from W line, Sec. 2, B.&B. Sur.
S.D. 3,200 ft.; may abandon.

GRAY COUNTY

Irish-American Oil Co.'s No. 1-B Morse, 990 ft. S and 330 ft. E, W½ NE Sec. 54, Blk. 25, H.&G.N. Sur.
Rig.

Southwest Prod. Co.'s No. 1 T. Cobb, 1,320 ft. from S line, 990 ft. from E line, NE Sec. 134, Blk. 2, I.&G.N. Sur.
T.D. 2,370 ft.; to deepen.

Texas Co.'s No. 1-C Taylor, 1,325 ft. from N and 1,320 ft. from W, Sec. 52, Blk. B-2 H.&G.N. Sur.
S.D. 2,758 ft.; pumped 150 bbls. daily.

HUTCHINSON COUNTY

Huey et al's No. 1 Christian, 220 ft. from S and 330 ft. from W, Sec. 32, Blk. Y, A.&B. Sur.
Drlg. 2,970 ft.

Stekoll's No. 2 G. W. Whittenburg, 330 ft. S and W of H. Prewitt Sur.
Rig.

MOORE COUNTY

Alma Oil Co.'s No. 1 Jones, 330 ft. N and W, Sec. 171, Blk. 3-T, T.&N.O. Sur.
Drlg. 3,110 ft.

Phillips Pet. Co.'s No. 2 J. C. Wilson, Sec. 157, Blk. T-3, T.&N.O. Sur.
Drlg. 7,352 ft.

Sunray Oil Co.'s No. 2-A Jones, 330 ft. S and W lines Sec. 164, Blk. 3-T, T.&N.O. Sur.
T.D. 3,352 ft.; swbd. 350 bbls. oil and 350 bbls. wtr.

Texoma Nat. Gas Co.'s No. 1 Haas, 2,672 ft. N, 1,791 ft. E, Sec. 20, Blk. P.M.C., E.I.R.R. Sur.
Rig.

Texoma Nat. Gas Co.'s No. 3-P Sneed, 3,734 ft. N and E of M. George Sur.
Rig.

POTTER COUNTY

U. S. Bureau of Mines, No. 2-A Bivins, C NE Sec. 22, Blk. 6, B.S.&F.
Rig.

RANDALL COUNTY

English et al's No. 1 Oxnard.
Drlg. 5,350 ft. (corrected).

WHEELER COUNTY

Bell O. & G. Co.'s No. 1 Plummer, 330 ft. S and E of NW Sec. 45, Blk. 24, H.&G.N. T.P. 2,472 ft.; T.D. 2,480 ft.; flowed 320 bbls. in 24 hrs.

Bowers & Carvers' No. 1 L. B. Sims, 330 ft. from N line, 330 ft. from E line of SW Sec. 60, Blk. 17, H.&G.N. Sur.
Drlg. 2,166 ft.

Carver Drilling Co.'s No. 1, Rock Island, 1,600 ft. from S line, 2,310 ft. from W line, Sec. 47, Blk. 13, H.&T.C. Sur.
Drlg. 470 ft.

Christie-Hickman's No. 1 Walker, 330 ft. S and E of NE Sec. 49, Blk. 24, H.&G.N. Sur.
Drlg. 2,390 ft.

Cloud et al's No. 1 Farren, 330 ft. N and W, NE SE Sec. 34, Blk. 24, H.&G.N.
Location.

Dyke Oil Co.'s No. 1 G. W. Sitter, 330 ft. from N line, 330 ft. from E line, N½ NW Sec. 28, Blk. 24, H.&G.N. Sur.
Drlg. 1,795 ft.

Ben G. Barnett's No. 1 Boren, NW cor. NE Sec. 24, Blk. 13, H.&G.N. Sur., 11 miles E and S of Shamrock.
S.D. 1,210 ft.

Johnson et al's No. 1 Grogan, 438 ft. N and 150 ft. W, Sec. 57, Blk. 23, H.&G.N. Sur.
Spudded and S.D.

LeFors Pet. Corp.'s No. 1 Perkins, 330 ft from S line, 330 ft. from W line, Sec. 54 Blk. 24, H.&G.N. Sur.
Rig up.

Martin & Son's No. 1 Plummer, 330 ft. N and E, NW SW Sec. 45, Blk. 45, H.&G.N. Tools.

Mudge Oil Co.'s No. 1 Dougherty, C SW Sec. 93, Blk. 23, H.&G.N. Sur.
Drlg. 1,665 ft.

Reno Oil Co.'s No. 1 Mankins, SW SE SE Sec. 54, Blk. 13, H.&G.N. Sur.
T.D. 2,216 ft.

Smith Bros.' No. 1 Williams, 330 ft. N and E, W½ SE Sec. 49, Blk. 24, H.&G.N. Sur.
Drlg. 2,368 ft.; est. 20,000,000 ft. of gas.

Underwood et al's No. 1 Roach, 330 ft. N and E, Sec. 27, Blk. 24, H.&G.N. Sur.
Material.

East Central Texas Wildcats

(Continued from Page 58)

KAUFMAN COUNTY

W. J. Lewis et al's No. 1 D. Clark, 430 ft. from S line and 600 ft. from E line of Sur., 6½ miles NW of Elmo.
S.D. 900 ft.

LEON COUNTY

L. P. Kean's No. 1 J. B. Hunter, R. Sowell Sur., 300 ft. from SW and 150 ft. from SE of 50-ac. tract, 4 miles S of Terrell.
Formerly abnd. 1,630 ft.

Normangee Corp.'s No. 1 B. H. Henry, 1,850 ft. from E line and 2,700 ft. from N line of survey, Robert Rogers League, 2½ miles NE of Normangee.
Fishing 2,740 ft.

LIMESTONE COUNTY

Doughtry et al's No. 1 S. Welch, 150 ft. from NW and 900 ft. from NE of 77.64-acre tract in A. Varilia Sur., 4 miles W of Groesbeck.
Rigged up.

Schultz' No. 1 Roy Ward, NE cor. of 73.3-ac. tract, 5 miles W of Mexia Field, Harrison York Sur.
Derrick.

Stewart Bros. and Watson's No. 1 T. N. Wilson, 1,400 ft. W and 330 ft. N of 236.1-ac. tract in Alex W. Patton Sur., 1½ mi. SE of Prairie Hill.
Spudded.

V. V. Waite's No. 1 Barrow, 650 ft. from S and 950 ft. from E line of 320-ac. tract W. G. McKenzie Sur., 3½ miles NW of Thornton.
Pits.

MORRIS COUNTY

Fleetborn Oil Corp.'s No. 1 Hammond, 3,500 ft. S and 1,750 ft. W of Thos. Burford Sur., 8 miles SE of Omaha.
Drlg. 3,310 ft.; elev. 371 ft.; top Austin 3,080 ft.

NACOGDOCHES COUNTY

Murray Oil Co.'s No. 1 C. B. Watkins, 150 ft. from N line and 330 ft. from NW lines of 160-ac. tract, 3 miles S of Caro. H. T. Bailey Sur.
S.D. 3,913 ft.

Wells et al's No. 1 Z. Ramblin, 900 ft. N and 330 ft. W of SE cor. of tract and survey, J. Simpson Sur., 12 miles NE of Nacogdoches.
Rigged up.

NAVARRO COUNTY

Bennett Brothers' No. 1 T. E. Stewart, 150 ft. from NE line of lease, 10 miles SW of Corsicana, Wm. R. Bowen Sur.
S.D. 1,186 ft.

R. B. Cocding et al's No. 1 Lela Kelt, 450 ft. from S line and center of N and S lines of lease, 3 miles NE of Chatfield C. B. Emmons Sur.
S.D. 1,340 ft.

W. J. Keeling et al's No. 1 J. F. Rushing 484 ft. from N line and 150 ft. from W line of 184-ac. tract, 6 miles SW of Richardson. Henry Ford Sur.
T.D. 2,880 ft.

McCullough et al's No. 1 C. Berry, 330 ft. from SE cor. of 35-acre tract, 1 mile W of Dawson, William Moss Sur.
S.D. 625 ft.

Syam Oil Co.'s No. 1 Mrs. Ray, 965 ft. E along N line from NW cor. Stevenson 101-acre tract and 305 ft. N at right angles, 3 miles SW of Rural Shade.
S.D. 4,002 ft.

RAINS COUNTY

Bryant & Spear's No. 1 Jones, 300 ft. from W and 150 ft. from N of 67-ac. tract, J. Compton Sur.
Coring 1,685 ft.

Wadley et al's No. 1 P. F. Jones, 400 ft. out of SW cor. of 22-ac. tract, 2½ miles S of Alba, B.B.B.&C. Sur.
S.D. 4,632 ft.

RED RIVER COUNTY

Abercrombie & Harrison's No. 1 Emma Watson, 4,850 ft. from W line and 4,550 ft. from N line of survey, E. H. Tarrant Sur.
Coring 1,010 ft.

Dinger's No. 1 W. T. Norris, 1,000 ft. from S and 1,900 ft. from W of 400-ac. tract, Jos. Guest Sur., 1 mile S of Detroit.
Location.

RUSK COUNTY

Fair, et al's No. 1 J. W. Needham, 335 ft. from W line and 700 ft. from N line of tract and survey, 10 mi. S of Henderson on 135-ac. tract, J. W. Chambers Sur.
Top Austin 3,845 ft.; coring 3,966 ft.

Headwater Oil Co.'s No. 1 F. L. Gary, 870 ft. N of S line and center of E and W lines of 200-ac. tract, 8 miles E and S of Henderson, Jose A. Mora Sur.
S.D. 3,197 ft.

George Hudson et al's No. 3 Jeff Phillips 150 ft. from N line of survey and 700 ft. from W line of 100-ac. tract, 4 miles SE of Minden, N. Villaria Sur.
S.D. 3,673 ft.

Ben Lamb's No. 1 H. Leath, 330 ft. out of NW cor. of 185-acre tract in L. J. Dooley Top Pecan Gap 2,418 ft.; coring 2,485 ft.

SMITH COUNTY

Deck et al's No. 1 Dendall, 330 ft. from E and W of 55-ac. tract, J. Williams Sur. 3 miles E of Van Field.
Spudded and S.D.

Fair et al's No. 1 Rushing, 1,000 ft. SE of old hole, 1½ miles SE of Whitehouse.
Top Woodbine 4,296 ft.; S.D. 4,673 ft.

Nenny et al's No. 1 J. I. Coulter, 1,217 ft. E of W line and 865 ft. N of S line of 100-ac. tract, Maria Gestrada Sur., 2 mi. NW of Sand Flat.
Drlg. 1,856 ft.

Paul S. Williams et al's No. 1 Dean, 330 ft. E and 730 ft. N of 100-acre tract in Denson Moore Sur., 1 miles NE of Bullard.
Elev. 485 ft.; S.D. 70 ft.

UPSHUR COUNTY

Wadley et al's No. 2 Shuttlesworth, 45 ft. from SE of No. 1 dry hole or 285 ft. from S and E lines, J. Dunn Sur.
Drlg. 2,565 ft.

VAN ZANDT COUNTY

Pet. P. L. & Storage Co.'s No. 4 Mrs. S. McGee, 450 ft. S of N line and 155 ft. E of W line of 53.4-ac. tract, Blk. 20, Elevation 441 ft.
S.D. 815 ft.

Pete Corley et al's No. 1 Slaton, 160 ft. from W and 660 ft. from N lines of William Carlton Sur., 3 miles SE of Ben Wheeler.
Rig.

Gillum and Allen et al's No. 1 A. T. Bass 150 ft. from W line and 150 ft. from N line of 10-ac. tract, William Hart Sur.
S.D. 1,700 ft.

Green and Winn's No. 1 Eaton, 330 ft. out of most westerly SW cor. of J. Wilson Sur., 2 miles SE of Martin.
Location.

Rogers & Schwartz's No. 1 McKinsey, C of N and S lines and 150 ft. from W of 106-ac. tract, Wm. Daniels Sur.
S.D. 1,257 ft.

Martin & Evans' No. 1 Bryant, 483 ft. N of same operators' dry hole, Nacogdoches County School Land Sur.
Rigged up.

Miller et al's No. 1 J. M. Palmer, 150 ft. from S and E lines of 69-ac. tract, Nacogdoches County School Land Sur.
S.D. 700 ft.

Overton Ref. Co.'s No. 4 Carter, 300 ft. N of No. 2 Carter and 150 ft. E of W line, Wm. Daniel Sur.
Rigged up.

Peden and Olson's No. 1 J. M. Palmer, 200 S of No. 2 and 140 ft. from W line of tract, J. Goodman Sur.
T.D. 2,188 ft.

M. Rouch et al's No. 1 Bearden & Palmer 150 ft. out of SE cor. of 61-ac. tract Nacogdoches C.S.L.
S.D. 1,237 ft.

Southwest Texas Wildcats

(Continued from Page 55)

DUVAL COUNTY

Conway & Buescher's No. 2 Hoffman, 330 ft. NE and SE lines of Sur. 119.
Spudded in and standing.

Grimes et al's No. 1 Fitzsimmons, 300 ft. S line and 150 ft. E line, Sur. 291.
Drlg. 115 ft.

W. C. McBride's No. 1-A Hagist, 330 ft. from N and E lines of Blk. 2, Sec. 265.
Drlg. 210 ft.

Mills Bennett Prod. Co.'s No. 1 D.C.R.C., 150 ft. N, 4,200 ft. E line of Sur. 192.
Drlg. 2,235 ft.

Stieren Oil Co.'s No. 1 J. P. Philp, 1,650 ft. S line, 990 ft. E line, Sur. 320.
Drlg. 2,300 ft.

W. B. Stewart's No. 1 Juan Benavides, 3,752 ft. S of the most southerly N line and 320 ft. from SW line of Sur. 355.
Drlg. 3,420 ft.

Texas Co.'s No. 1 Tom Graham, 5,065 ft. N 65 deg. E and 1,130 ft. S 25 deg. E, W cor. Geo. Reynolds Sur. 572.
Abd. 5,410 ft.

EDWARDS COUNTY

Carter et al's No. 1 W. A. Miers, 990 ft. from N and E lines of Sec. 6, C.C.S.D.& R.G.N.G. Sur.
S.D. 402 ft.

Will Oilhausen's No. 1-B Turney, 660 ft. from W line, 1,622 ft. from N line of Sec. 176, C.C.S.D.&R.G.N.G. Sur.
Drlg. 585 ft.; no report.

H. H. Sides' No. 1 Turney, C.C.S.D.&R.G.N.G. Sur. No. 164, 1,320 ft. N line and W line of survey.
Standing 1,010 ft.

Harry Adams' No. 1 Holman, 1,650 ft. N line, 330 ft. from E line, Sec. 22, C.C.S.D. &R.G.N.G. Sur.
T.D. 583 ft.; in sand at 575-83 ft.; showing for about 1 bbl. daily of dead oil; no report.

FRIO COUNTY

Amerada Pet. Co.'s No. 2 Halff & Oppenheimer, begin at most easterly N cor. of John E. Gibson Sur. No. 16, thence SE along NE line of Sur. 2,100 ft., thence SW at right angles 800 ft. (4 mi. SW of Pearsall).
Fishing 10,013 ft.

GILLESPIE COUNTY

Ed L. Nixon's No. 3 Lindig, 12,694 ft. S line, 1,333 ft. W line, Maria Josepha Guerra Sur. No. 41, or 6 ft. S of No. 1.
Standing 515 ft.

GOLIAD COUNTY

Magnolia Pet. Co.'s No. 1 Albrecht, 660 ft. N line, 330 ft. SW line of J. P. Reid Sur.
Derrick.

Oceanic Pet. Co.'s No. 1 Fromme, 1,500 ft. S line, 1,200 ft. W line of 62-ac. tract in P. D. Dexter Sur., 10 miles N of Goliad.
T.D. 2,685 ft.; to set csg.; standing.

GUADALUPE COUNTY

Diamond Half Oil Co.'s No. 1 Wm. Maiserhofer, 506 ft. from E line and 1,500 ft. from N line of 51.85-ac. tract in L. H. Peters Sur.
S.D. 2,126 ft.

L. E. Trout's No. 1 McKee, Green DeWitt Sur., SW Darst Creek.
S.D. 1,200 ft.

HIDALGO COUNTY

Danvers-Harrison et al's No. 1 Guerra, 330 ft. out of SW cor. of 40-ac. tract, Blk. 13, Porcion 41.
T.D. 2,740 ft.; making some oil; 1,050 lbs. working pressure; ¼-in. choke.

Davis & Harrison's No. 1 Lula George, 393 ft. from S and 700 ft. from E lines of Tract 13, Porcion 41, Ancient Jurisdiction of Reynosa.
T.D. 4,135 ft.; set perforated liner in effort to get gas or oil in sand at 4,109-25 ft.

John Deering et al's No. 1 John C. Engleman, 400 ft. S and W lines, Lot 3, Blk. 79, Mestenas tract.
Drlg. 5,850 ft.

Downey & Morton's No. 1 Deskam, 460 ft. from E line, 55 ft. from S line of Blk. 34, Por. 45.
S.D. for repairs; T.D. 1,850 ft.

Jenkins & Secton's No. 1 John D. Puckett, 330 ft. N and W lines, Share 96, San Salvador del Tule grant.
Derrick.

Union Sulphur Co.'s No. 2 American Rio Grande L. & I. Co., 400 ft. from S and E lines of tract, Blk. 86, North Capisallo district.
Drlg. 7,330 ft.

JIM HOGG COUNTY

John D. Norwood's No. 1 C. W. Hellen, 330 ft. N and W lines, Sur. 48.
T.D. 1,260 ft. (corrected); standing.

J. M. Shugart's No. 1 R. Holbien, 100 ft. from N line, 330 ft. from S line of Blk. 55, Sur. 17 of Holbien Subd., of Las Animas grant.
Spudded in and set surface csg.

Sun Oil Co.'s No. 1 A. L. East, 660 ft. from N and E lines of Blk. 4, Sur. 33.
Cmtd. csg. 200 ft.; W.O.C.

JIM WELLS COUNTY

Plymouth Oil Co.'s No. 1 Cuero Cattle Co., 330 ft. from S and W lines of H.T.&B. Sur. No. 7, 21½ miles W from Alfred.
No report.

Smith & Storey's No. 1 Martha E. Ellworth, 330 ft. N and W from SE cor. of W half of W 426 acres of Stanley Welch Sur.
Drlg. 5,360 ft.; no report.

KARNES COUNTY

F. P. Hynes et al's No. 1 Swiercy, 2,650 ft. from NW line, 500 ft. from SW line of 100-ac. tract in Gasper Flores Sur.
T.D. 3,503 ft.; plugging hole to abnd.

R. E. Cezeaux et al's No. 1 Tom Campbell, 330 ft. S and E cor. of farm and survey, J. R. Backer Sur., 12½ miles SW of Falls City.
S.D. 1,254 ft.

Marrs et al's No. 1 M. E. Choate, 330 ft. out of NW cor. of 128-ac. tract, Johnson Sur.; elev. 382 ft.
T.D. 3,500 ft.; P.B. to sand topped at 3,312 ft.; set pipe.

KENDALL COUNTY

Walter Bradley's No. 1 Warner, John F. Torrey Sur.
S.D. 919 ft.

W. R. Shanklin's No. 1 Seidenstick, 1,835 ft. from most easterly E line, 100 ft. from most northerly S line of Antonio Rodegues Chacon Sur. 257.
S.D. 400 ft.

KERR COUNTY

Edmiston Oil Corp.'s No. 1 Whitworth, 1,160 ft. from S line and 1,333 ft. from E line of Sec. 1,439 of the H.E.&W.T. Sur.
S.D. 675 ft.

Herbert Oil Co.'s No. 1 J. D. Witt, 13,200 ft. from N line, 1,200 ft. from W line of Sec. 1,923, Hamilton Sur.
S.D. 1,896 ft.

Jeff Love and Eastland Oil Co.'s No. 5-B Jeff Love, 1,500 ft. SE of No. 1 and 1,580 ft. from SE cor. and 300 ft. from N line of Sec. 1,591.
T.D. 3,465 ft.; waiting on orders.

J. F. Morrissey et al's No. 1 F. A. Karge, 1,400 ft. from S line and 600 ft. from E line of survey, Sec. 1, B.S.&F. Sur.
Drlg. 1,500 ft.; no report.

LA SALLE COUNTY

Standard Oil Co. of D. C.'s No. 1 J. M. Martin, 300 ft. S and W lines of 543-ac. farm in Sur. 683.
Drlg. 2,255 ft.; no report.

LEE COUNTY

Jas. E. Pederson's No. 1 Turner, David Hudson Sur.
Running csg. 6,320 ft.

LIVE OAK COUNTY

Coquat's No. 1 Wade McNeil, 1½ miles NW McNeil discovery well.
Drlg. below surface csg.; no report.

W. H. Helmerich's No. 1 Cartwright, 660 ft. from W line, 330 ft. from S line of Lot 16, Seale, Morris & Seale Sur.
Drlg. 3,485 ft.

Henderson Coquat et al's No. 1 Robertson, Sec. 314.
Drlg. 4,700 ft.

Henderson Coquat et al's No. 1 Little, 1,320 ft. NE of S cor. of M. M. Shipp Sur. and 330 ft. N of S line.
Drlg. 2,685 ft.

MAVERICK COUNTY

Mike Chorgas et al's No. 1 Mathews, on edge of municipal airport at Eagle Pass.
Drlg. 225 ft.

McMULLEN COUNTY

Beer-Witherspoon's No. 1 Ezzell, 330 ft. from N and W lines of 40-ac. tract in Fant & Fadden Sur.
Abd. 1,533 ft.

Bolin's No. 1 Brown, 1,500-ac., NW Crowther field.
Abd. location until work is started.

H. K. Boysen's No. 1 Hagist, 990 ft. S, 330 ft. W of NE cor. Sec. 10, H.&T.C.R.Y. Sur.
T.D. 1,380 ft.; coring for lower Cole sand.

Byron Rife's No. 1 Edrington, 330 ft. from S and W lines of Sec. 79.
Spudded.

Circle W Oil Co.'s No. 1 Wheeler, NW cor. Sec. 44, of Two Rivers Ranch Subd.
Coring 1,165 ft.; no report.

Choate & Noble's No. 1 Miles, 330 ft. from S line, 2,750 ft. from E line of 1,350-ac. tract in Stephens Sur.
Location.

Howard's No. 1-A Claunch, 90 ft. E line, 700 ft. S line of tract in M. Healy Sur.
T.D. 780 ft.; S.D.

Newton et al's No. 1 Murphy, SW cor. of Sur. 480, adjoining Hagist ranch.
Drlg. 1,610 ft.

C. C. Shumway's No. 8 Shiner.
Rig up.

Charles Wuest's No. 1 Fisher, Roderick O'Boyle Sur.
Derrick.

Hy Yound's No. 1 Callihan, James Gardner Sur., NW cor. Blk. 4, Sec 6.
Derrick.

MEDINA COUNTY

C. M. Peacock's No. 1 Odem, 160 ft. from W line, 200 ft. from S line of Castro Sur. No. 173-174.
Location.

Scoggins & Sanders' No. 1 L. W. Burrell, 150 ft. from E line, 1,750 ft. from N line of M. E. Gage Sur. 395.
Drlg. 1,815 ft.; no report.

MILAM COUNTY

C. F. Drake et al's No. 1 Standard Coal Co., 970 ft. SW line, 1,700 ft. SE line of G. L. Johnson Sur.
Drilling.

Frank W. Keller, Inc.'s No. 1 A. L. Lucas, 1,980 ft. from N line, 400 ft. from E line of 178.5-ac. tract in J. Real Sur.
Location.

Second Natl. Bank's No. 1 B. P. Ward, 150 ft. SW line, 950 ft. SE line of 100-ac. tract, L. Taylor Sur.
Drlg. 1,535 ft.

NUECES COUNTY

Buff Pet. Co.'s No. 1 Vincent Bluntzer, 660 ft. N line, 660 ft. E line of Share 7 of Bluntzer Subd.
Rigging.

Clymore Oil Co.'s No. 1 Palo Alto Farms, 2,640 ft. from N and E lines of Sec. 132 of Bishop Subd.
Derrick

Texon Royalty Co.'s No. 1 Robert Driscoll, 330 ft. from N line, 5,697 ft. from W line of 880-ac. Driscoll tract and E of Simmons & Perry tract.
Rig up.

REAL COUNTY

M. J. Heartwell et al's No. 2 L. J. Haby, 694 ft. from W line and 2,163 ft. from S line of A.B.&M. Sur. No. 175.
T.D. 2,837 ft.; W.O.C.

SAN PATRICIO COUNTY

Allied Minerals' No. 1-A Ramsey, 466 ft. E. 220 ft. N of SW cor. of the North B. Giddings Sur. on a 1,000-ac. tract.
Sandy shale 2,462 ft.; moving in heavier rig.

Carpenter et al's No. 1 Sadler, Mud Flats area.
Standing 6,009 ft.

Lonnie Glasscock's No. 1 M. F. Timmons, 330 ft. out of SE cor. of Blk. 27, San Patricio townsite.
Drlg. 5,300 ft.; to make a D.S. test at 4,700 ft.

STARR COUNTY

Conway & Emanuels' No. 1 S.C.C.C., 360 ft. W line, 330 ft. S line, Blk. 62, Jeffries Lambeth Div., Porcion 88-89.
Moving in material.

Conroe Drlg. Co.'s No. 1 Guerra, 330 ft. SE and NE line, Blk. 35, Por. 55.
Rigging up.

Cooper & Andrews' No. 1 J. M. Martinez, SW cor. Sec. 135.
Location.

C. R. Borah's No. 1 A. Guerra, San Jose grant, 330 ft. from N and 150 ft. from E line of Sec. 6 (NE part of county).
Drlg. 2,455 ft.

Crawford et al's No. 1 Hicks et al, 150 ft. SE and NE line of NW, Perdernal grant.
Derrick.

Lester & Duffield's No. 1 Carruth, 3,690 ft. S line, 3,300 ft. W line of Share B-1, Porcion 91-92.
Location.

C. L. Smith et al's No. 1 J. M. Longfellow, 330 ft. out of NW cor. of Sur. No. 281.
Drlg. 2,615 ft.

Heep Oil Co.'s No. 1 Guerra, 330 ft. from NE and SE lines of Blk. 35, J. N. Crawford Subd., Porcion 56, Jurisdiction of Mier.
Rigging up.

Smith & Weston's No. 1 M. M. Garcia, Blk. 9, Sur. 908.
Location

Sun Oil Co.'s No. 1 Gonzales & Clark, 600 ft. out of NW cor. of NE Sec. 372, T.T. Ry. Sur. No. A-773.
Drlg. 3,370 ft.

United Prod. Co.'s No. 1 Guerra, 36, 170 ft. from NE line, 1,521 ft. from NW line of Porcion 66.
Drlg. gray sandy shale 2,794 ft.

E. L. Younkin's No. 1 Kelsey Bass, 330 ft. from S line, 7 ft. from W line of Blk. 19. in Porcion 87.
Drlg. 2,255 ft.

TRAVIS COUNTY

Marts & Beavens' No. 1 Emil Bloomquist, 150 ft. from NW line and SW line of 99½-ac. tract in Peter C. Harrison Sur.
S.D. 1,300 ft

UVALDE COUNTY

Humble Oil & Ref. Co.'s No. 1 R. L. Anderson, 7,450 ft. SW of NE line and 9,100 ft. SE of NW line of J. J. Guerra Sur. (3 mi. NE of Uvalde).
Drlg. quartzite 4,976 ft.

T. T. Word's No. 1-B Truelove, 45 ft. E of No. 1-A.
Setting csg. 2,100 ft.

WEBB COUNTY

Detterhaim & Jones' No. 1 M. Jones, 600 ft. E line, 1,620 ft. S line of Sur. 1,640.
Drlg. 455 ft.; no report.

Payne et al's No. 1 Hoggtorp, Blk. 6, Sur. 1,110, W of Oilton.
Location.

WILLACY COUNTY

W. W. Silk's No. 1 Stillman, Lot 16, Blk. 30, Santa Rosa Subd., Share 44.
Drlg. 2,000 ft.; no report.

WILLIAMSON COUNTY

Johnson & Ray's No. 1-A Mary Smith Oxford, 350 ft. S, 40 deg. E of No. 1, Williams Sur.
Drlg. 715 ft.

Mann & Roez et al's No. 1 F. Roez, John Bevil Sur. 56.
S.D. 1,025 ft.

T. J. McConnell's No. 1 J. R. Nazier, 150 ft. from S line and San Gabriel River and 150 ft. from E line of 124-ac. tract in Zarzo Sur.
T.D. 675 ft.; standing in chalk.

J. Morgan Russell's No. 3 Nelson, 3,300 ft. from CEL of W. Donaho Sur. No. 117, 1,600 ft. from CSL.
Drlg. 320 ft.

Stalley & Caffy's No. 1 A. J. Nelson, 350 ft. from SE line and 150 ft. from NE line of Barney C. Love Sur.
T.D. 355 ft.; H.F.W.; no report.

WILSON COUNTY

Ray Oil Co.'s No. 1 J. M. McDaniel, 1,700 ft. from SW line, 350 ft. from NW line of 193.5-ac. tract in Concepcion Bostello Sur. No. 9.
Rigged up and S.D.

J. C. Yancey's No. 1 Lyssy, 300 ft. from SE and SW lines of lease in D. J. Holt Sur.
T.D. 1,600 ft.; S.D. in shale.

ZAPATA COUNTY

C. C. Crews' No. 1 M. D. Slator, 2,111 ft. from SW line, 1,950 ft. from SE line of Blk. 1, Mission Oil Co. Subd. of Slater ranch, Borrego grant.
T.D. 1,739 ft.; abd.

Danvers & Harrison's No. 1 M. J. Vela, 630 ft. NE line and 300 ft. NW line, or 3,140 ft. E line and 330 ft. N line of Por. 29, Blk. 7, Bela Subd.
T.D. 1,603 ft.; washing to bottom.

Merle Gunby's No. 3 Alice D. Haynes, 200 ft. SE and NE lines, Blk. 9, Haynes Subd., Comitas and Villa grant.
Drlg. 2,905 ft.

H. & M. Drlg. Co.'s No. 1 Slater, 614 ft. from SW line, 150 ft. from SE line, Blk. 65, J. B. Borrego grant.
T.D. 22 ft.; abd.

Howell Muckelroy's No. 1 Filemn Flores, 77 ft. from SE line on NE line Lot 2, Blk. 30, Por. 37.
Derrick.

Joe Palmer's No. 1 J. M. G. Martinez, 150 ft. SE and SW line, Blk. 27, Sur. 434.
Rigging up.

A. H. Wray's No. 5 Gopher Trust, 330 ft. NE and NW lines of Blk. 12, Sur. 1, San Ignacia Subd., Borrego grant.
Drlg. 100 ft.

Southwest Texas Proven

Week Ending November 17

NORTH DALE POOL—BASTROP COUNTY

Cole Pet. Co.'s No. 1 Rubin Gage, NE cor. of tract, 150 ft. each way from corner.
Location.

Joe E. Mills' No. 1 Mrs. W. J. Cardwell, 900 ft. from SE line, 1,200 ft. from SW line of tract, J. A. Navarro Sur.
Rigging up and S.D.

Joe E. Mills et al's No. 1 Wm. Litton, 620 ft. from SE line, 850 ft. from SW line of 320-ac. tract in Navarro Sur.
T.D. 1,753 ft.; standing; showing for small well.

Porter and Neal's No. 1 J. F. Wolff, 150 ft. from NE line, 2,800 ft. from SE line of F. Edmundston Sur.
Spudded and S.D.

CAESER—BEE COUNTY

Luling O. & G. Co.'s No. 5 (B-3) Ruhmann, 300 ft. S, 300 ft. E of No. 4 (C-1).
Coring 3,065 ft.

NORTH PETTUS FIELD—BEE, GOLIAD AND KARNES COUNTIES

Houston Oil Co.'s No. 7-B Niehaus, 660 ft. SE of No. 4-B, Talley Sur.
Abd. 4,010 ft.

Houston Oil Co.'s No. 9-B Niehaus, 660 ft. SE of No. 6-B, B.S.&F. Sur.
Location.

United Prod. Co.'s No. 47 Ray, 300 ft. NW from SW cor. of Houston Oil Co.'s Neihaus "B" lease along Neihaus-Ray property line, thence 330 ft. in SW direction at R/A to previous course.
T.D. 3,958 ft.; comp.; no gauge; 150 lbs. csg. pressure; 125 lbs. tubing pressure; ¼-in. choke.

Diamond Half Oil Co. et al's No. 3 Grady Smith.
T.D. 3,688 ft.; I.P. 280 bbls. per day.

TULETA—BEE COUNTY

Circle W. Oil Co.'s No. 2 Rapp.
Cored Pettus sand 3,897-3,907 ft.; to make D.S. test.

Heyzer, Heard & Jones' No. 2 Rapp.
Drlg. 3,800 ft.

E. M. Jones' No. 1 Skinner & Harris, 330 ft. from N and W lines of E 80-ac. of NW of Sec. 10 Ragsley Subd. of Uranga grant.
Pettus sand 3,393-98 ft.; D.S. test showed 500 ft. of oil and 100 lbs. pressure in 10 minutes.

Mills Bennett's No. 1 Silcock, 330 ft. S and W of NE cor. Sec. 9, Uranga grant.
Coring Pettus sand 3,861 ft.

Mills Bennett's No. 1 Tuleta Mercantile Co., 330 ft. from N and W lines of SW Sec. 10. Bldg. derrick.

Whisenant & Trenchard's No. 2 Rapp, 330 ft. from N and E lines of N½ NW NE Sec. 10.
T.D. 3,900 ft.; comp.; 200 bbls. per day.

HOCH—BEXAR COUNTY

H. J. Trawalter's No. 7 fee, 150 ft. from N line, 450 ft. from E line of 202-ac. tract in S. Jett Sur. No. 53.
Standing 450 ft.

VON ORMY—BEXAR COUNTY

W. L. Umbura's No. 1 Bilhartz, in SW cor. of tract, offsetting Strumberg well, F. Rolen Sur.
Abd. 1,839 ft.

DALE—CALDWELL COUNTY

W. B. Hinton's No. 1 Osteen, 150 ft. SW line, 450 ft. NE line of 70-ac. tract in Swearinge Sur.
Drlg. 1,280 ft.

McNeil Pet. Co.'s No. 1 J. M. Mieara, 660 ft. NW line, 700 ft. SW line of 327-ac. tract in W. C. Swearingen Sur.
Rigging up.

DUNLAP—CALDWELL COUNTY

Moseley's No. 1 J. M. Pierce, 150 ft. E line, 400 ft. S line of G. C. and W. P. Walker tract, Seale Sur. No. 8.
Drlg. 1,790 ft.

GOVERNMENT WELLS POOL—DUVAL COUNTY

Brown & Nessly's No. 1 Curry, 330 ft. N line, 900 ft. W line of SW. Sur. 62.
Location.

Brown & Nessly's No. 3 Runnels, 330 ft. S line, 990 ft. W line of NE NW Sur. 62.
Sand 2,349-56 ft.; T.D. 3,456 ft.; W.O.C.

Brown & Nessly's No. 4 Runnels, 330 ft. E and N line of NE NW Sur. 62.
T.D. 2,356 ft.; testing.

Edna Bryant et al's No. 1 J. W. Kidd, 430 ft. S line, 315 ft. E line of Sur. 56.
Testing 2,220 ft.

Edgington & Murray's No. 1 C. W. Hahl, 330 ft. N and E lines, Blk. 16, Sur. 250.
Location.

Edgington & Murry's No. 2 Winch & Henne, 330 ft. from E line, 990 ft. from N line, Blk. 15, Sur. 250.
T.D. 2,376 ft.; W.O.C.

Feliz Oil Co.'s No. 2 Curry, 330 ft. S line, 990 ft. W line of N½ SW of Sur. 62.
Rigging up.

Government Wells Oil Corp.'s No. 6 State, 330 ft. from N line, 1,650 ft. from W line of Sur. 60.
T.D. 2,248 ft.; flowing 20 bbls. an hr.

Gov. Wells Oil Co.'s No. 7 State, 990 ft. N line, 2,310 ft. W line of Sur. 60.
Drlg. 1,000 ft.

Gov. Wells Oil Co.'s No. 8 State, 330 ft. W line, 900 ft. N line of NE of Sur. 62.
Location.

Magnolia Pet. Co.'s No. 11-A C. W. Hahl, 330 ft. S and W lines of SE Sur. 45.
Drlg. 2,000 ft.

Magnolia Pet. Co.'s No. 1 D.C.R.C., 330 ft. S and E lines of Sur. 57.
Derrick.

Magnolia Pet. Co.'s No. 40 D.C.R.C., 990 ft. W line, 2,310 ft. N line of Sur. 209.
Testing 2,320 ft.

Magnolia Pet. Co.'s No. 1 Hahl-Rogers, 330 ft. N and W lines of W½ NE of Sur. 61.
Sand 2,293-99 ft.; 7-in. csg. 2,293 ft.; T.D. 2,313 ft.; I.P. 8 bbls. per day; flowing.

Magnolia Pet. Co.'s No. 3 Hahl-Norton, 330 ft. S and W lines of Sur. 61.
Testing 2,315 ft.

Magnolia Pet. Co.'s No. 2 Hunt, 330 ft. S line and 250 ft. W line, SE of Sur. 46.
Cmtd. 7-in. csg. 2,343 ft.; sand.
T.D. 2,350 ft.; I.P. 65 bbls. per day on pump.

Magnolia Pet. Co.'s No. 1 Emil Labbe, 330 ft. S and W lines of Sur. 2.
Drlg. 1,360 ft.

Magnolia Pet. Co.'s No. 4 A. L. Tankersley, 330 ft. S line, 250 ft. E line of SW of Sur. 46.
Drlg. 1,000 ft.

Magnolia Pet. Co.'s No. 10 J. O. Wilson, 330 ft. N and E lines of Sur. 348.
Location.

Newton & Andrews' No. 1 Bowe, 330 ft. S and W lines of Blk. 21, Sur. 250.
Location.

Reynosa Oil Co.'s No. 9 D.C.R.C., 330 ft. E line, 430 ft. N line of N½ SW of Sur. 362.
Standing 2,150 ft.

Russ Pet. Co.'s No. 4-C Hahl, 330 ft. N and E lines of SW NW of Sur. 62.
No report.

Smith & Storey's No. 11 Lundell, 330 ft. S and W lines of Sur. 2.
T.D. 2,221 ft.; est. 75 bbls. on pump.

Smith & Story's No. 12 Lundell, 330 ft. S line, 990 ft. W line of Sur. 48.
Rigging up.

Sun Oil Co.'s No. 73 Weiderkehr, 660 ft. S of No. 70 on 3,035-ac. tract in Sur. 359.
Rig.

Sun Oil Co.'s No. 3 Henne-Winch, 330 ft. W and E line of Sun tract in Blk. 15, Sur. 250.
Testing 2,360 ft.

E. R. Thoas' No. 1 Bishop Cattle Co., 2,325 ft. E line, 330 ft. N line of S½ of Sur. 135.
Location.

Trapshooter Reilly's No. 4-B Hahl, 70 ft. E line, 330 ft. S line, Sur. 48.
Rigging up.

J. H. Winch's No. 1 Smith Corkill, 1,667 ft. NW line, 980 ft. SW line of Sur. 491.
Spudded.

HOFFMAN—DUVAL COUNTY

Southwest Drlg. Co.'s No. 1 Cueliar, 330 ft. SW and NW line of NE of Sur. 114.
Set 10-in. csg. 40 ft.

LUCAS—LIVE OAK COUNTY

Lion Oil & Ref. Co.'s No. 2 McNeil, J. Curry Sur., 660 ft. N of No. 1.
Cored sand 5,914-17 ft.; showed high gas pressure.

Houston Oil Co.'s No. 29 Cartwright
Drlg. sticky shale 1,120 ft.

DARST CREEK—GUADALUPE COUNTY

Grayburg Oil Co.'s No. 1 Mrs. S. M. Roamel, 491 ft. N line, midway between W and E lines of 60-ac. lease.
T.D. 2,508 ft.; I.P. 6 bbls. per day; est. good for 25 bbls. later on pump.

SAM FORDYCE—HIDALGO COUNTY

W. E. Butler's No. 1 F. B. Guerra, 93 ft. N line, 294 ft. S and W lines of 2.5-ac. tract in Tract 254, Por. 39-40.
Location.

Circle W Oil Co.'s (Navarro) No. 1 Seabury, George & Taylor, 330 ft. S and E lines of SE 51-ac. tract in Tract 256, Por. 38.
Drlg. 2,500 ft.

Jack Clements' No. 1 Felipe Farias, 150 ft. from N and E lines of Share 273, Por. 39, Reynosa.
Derrick.

Cosmo Pet. Co.'s No. 1 F. B. Guerra, 330 ft. W line, 130 ft. N and S lines of N 25-ac. of S 100-ac. of E 290-ac. of Tract 254, Por. 39-40.
Rigging up.

Danvers-Harrison & Davis' No. 1 Dr. Austin, center of E 7.3-ac. of S 14.4-ac. in Share 262, Por. 38.
Location.

Edwards & Olford's No. 1 E. Flores, 330 ft. N line, 126 ft. E line of Tract 267, Por. 38.
T.D. 2,807 ft.; drilled plugs and running tubing to comp.

M. Porter Evans' No. 1 John W. Lawrence, 330 ft. from N and W lines of W 19.04-ac., Share 274, Por. 39.
Location.

Porter Evans' No. 1 David Flores, Tract 262, Por. 38.
S.D. 2,230 ft.

Heep Oil Co.'s No. 1 W. R. Jackson, 344 ft. E and W lines, Tract 278, oPr. 39-40.
Drlg. 3,600 ft.

Heep Oil Co.'s No. 1 Guerra, 330 ft. from W line, 185 ft. from N line of 25-ac. tract in Por. 40.
T.A. 3,647 ft.

Heep Oil Co.'s No. 2 Seabury et al, 330 ft. N and E lines of SE 260 acres, Tract 256, Por. 38.
Moving in material.

Henshaw Oil Corp.'s No. 1 Seabury et al, C of SW 11.5 acres of NE 45.25 acres, Tract 256, Por. 38.
Location.

R. C. Horne's No. 1 F. B. Guerra, 93 ft. S line, 294 ft. E and W lines of NW 2.5-ac. tract in S 125 acres of E 290 acres of Tract 254, Por. 39-40.
Location.

T. I. Larson's No. 1 G. G. Salinas, 330 ft. S and W lines of Share 10, Por. 41.
Cmtd. csg. 200 ft.

Lucky, Blocker & Bishop's No. 2 F. B. Guerra, 300 ft. S line, 2,511 ft. W line of Tract 254, Por. 39.
Sand 2,762-69 ft.; cmtd. csg.

Moncrief & Showers' No. 1 John Lawrence, on 2.52-ac. tract.
Sand 2,772-84 ft.; cmtd. csg.

Moncrief & Showers' No. 2 John Lawrence, 305 ft. N line, 241 ft. E line of 13.5-ac., Tract 274, Porcion 39.
Moving in derrick.

Moncrief & Showers' No. 1-B J. Lawrence, NE 13.5 acres, Tract 274, Por. 39.
Derrick.

Moss & Bass et al's No. 1 F. B. Guerra, 245 ft. N line, 300 ft. W line of 25 acres of S 50 acres of E 290 acres, Tract 254, Por. 40.
Location.

Phillips Pet. Co.'s No. 1 Seabury et al, Tract 278, Por. 40.
Rigging up.

Reynosa Oil Co.'s No. 1 Guerra, 330 ft. from W line, midway between N and S lines of NW 10-ac. of SW 40 acres of Tract 254, Porcion 39.
Machinery on ground.

Reynosa Oil Co.'s No. 1 P. S. Rivas, 330 ft. from N line, 258 ft. from W line of N 30-ac., Tract 393, Por. 39.
Location.

H. B. Simms' No. 1 Guadalupe, F. V. de Rivas, 129 ft. N and S lines, 209 ft. E and W lines of Lot 101, Tract 349, Por. 48.
Location.

Ed Sullivan's No. 1 E. B. Guerra, center of NE 10.77 acres of SW 40.7 acres of Tract 254, Por. 39.
Location.

Ed Sullivan's No. 1 E. Flores, 330 ft. N line, 107 ft. E and W lines of Tract 266, Por. 38.
Location.

Van Dresar et al's No. 1 W. R. Jackson, 330 ft. from N and W lines of 92-ac. tract, Por. 38-39-40, Blk. 273.
Location.

Otto Woods' (Kingwood) No. 1 Flores, 150 ft. E line, 296 ft. S line of Tract 262, Por. 38.
T.D. 2,780 ft.; abd.

Otto Woods' No. 1 F. B. Guerra, 1,700 ft. NW of discovery well.
T.D. 2,806 ft.; cleaning on 5/32-in. choke.

Otto Woods' (Kingwood) No. 3 F. B. Guerra, 300 ft. S line, 1,077 ft. W line, Tract 254, Por. 39.
Drlg. rock 2,740 ft.

Otto Woods' (Kingwood) No. 4 F. B. Guerra, 330 ft. S and E lines of NW 30 acres of S 150 acres, Tract 254, Por. 39.
Location.

Otto Woods' No. 3 John Lawrence, 330 ft. from S and W lines of W 40 acres of Tract 274, Por. 39.
T.D. 2,725 ft.; ratholing.

Otto Woods' No. 4 John Lawrence, 330 ft. from E line, 250 ft. from S line of W 40 acres, Tract 274, Por. 39.
Rigging up.

Windsor Oil and Circle W Oil Co.'s No. 1 J. H. Doss, 330 ft. from N and W lines of 55 acres or in Tract 278, Por. 40.
Location.

JACOB POOL—McMULLEN COUNTY

American Gas Co.'s No. 1 L. Jacobs Corp., 350 ft. W of SE cor., 160 ft. SE line of tract in Fa'den Sur.
Spudded and S.D.

Jane Oil Co.'s No. 3 H. L. Lark, 500 ft. N of No. 2.
Ready to spud.

C. R. Kennon's No. 4 H. L. Lark, 175 ft. from S line, 175 ft. from W line of E 20-ac. of Blk. 15 of Scrugham Sur.
Location.

C. R. Kennon's No. 5 H. L. Lark, 175 ft. from S and E lines of E half of Blk. 15 of Scrugham Sur.
Location.

Loma Oil Co.'s No. 30 Jacob, 660 ft. S, 330 ft. W of NE cor. Sec. 10, H.&T.C.R.Y. Sur.
T.D. 964 ft.; I.P. 150 bbls. per day.

Stewart & Holding Co.'s No. 3 Jacob, 660 ft. S and 660 ft. E of No. 2, John Faddes Sur.
T.D. 895 ft.; S.D.

R. P. Whitefield's No. 3 Jacob, 240 ft. E line, 275 ft. S line of 70-ac. tract out of NE cor. Sec. 9, 314 ft. S of No. 1.
Drlg. 350 ft.; no report.

SINTON—SAN PATRICIO COUNTY

Heep Oil Corp.'s No. 3 R. Welder, 466 ft from S line, 2,000 ft. from E line of Adeline Welder tract in Victor Loupsey Sur.
Derrick.

Heep Oil Corp.'s No. 4 R. Welder, 466 ft from S and W lines, 300-ac. tract, Victor Loupsey Sur.
T.D. 7,220 ft.; completed; fishing job.

Plymouth Oil Co.'s No. 2-B Welder, start at SW cor. of "B" lease, thence NW along the W line 2,100 ft., thence 340 ft. NE at R/A.
W.O.C. 1,394 ft.

Plymouth Oil Co.'s No. 3-A Wheeler.
Location.

JEFFRIES-LAMBETH—STARR COUNTY

Weekly Oil Co.'s No. 2 S.C.C.C., 330 ft. from S and W lines of Blk. 19, Porcion 89.
Coring 2,742 ft.

LOS OLMOS—STARR COUNTY

J. P. Kennedy's No. 3 Kelsey-Bass, 200 ft. SE of No. 7 Kelsey-Bass in Blk. 7 of Porcions 75, 76 and 77.
Location.

CUEVITAS POOL—STARR COUNTY

Sun Oil Co.'s No. 5-C M. Guerra & Son, 1,320 ft. NE of No. 4-C La Sacatosa grant.
Location.

AGUA DULCE—NUECES COUNTY

Clymore Prod.'s No. 3 Ingram, 660 ft. from E and S lines, Sec. 6, Blk. 6, Peters Subd. Derrick down.

Clymore Prod. Co.'s No. 3-D Ingram, 660 ft. from S and W lines of Lot No. 7, Sec. 6, Peters Subd. No. 2.
Location.

Clymore Prod. Co.'s No. 1-C Ollie Purl, 660 ft. N and E lines of Lot No. 2, Sec. 7, Peters Subd. No. 2.
Moving in rig.

SAXET—NUECES COUNTY

Southern Mineral Corp.'s No. 4 Ocher, 1,320 ft. S line and 417 ft. E line of Ocher 202.52-ac. tract in Sec. 8.
Location.

KIMBRO—TRAVIS COUNTY

Humble O. & R. Co.'s No. 2 Peterson, 330 ft. NE and SE lines of 127-ac. tract.
Abd. 836 ft.

WEST COLE POOL—WEBB COUNTY

American Liberty Oil Co.'s No. 4-A Bruni 777 ft. SW line, 1,598 ft. SE line of Sur 6, Foltz Subd., Arispe grant.
Fishing 3,419 ft.

American Liberty Oil Co.'s No. 6-A Bruni 330 ft. NW line, 1,003 ft. SW line of Sur. 6.
T.D. 3,414 ft.; cmtd. 7-in. csg. at 3,387 ft.

American Liberty Oil Co.'s No. 2-B Bruni 418 ft. NE line, 260 ft. NW line of Blk 12, Sur. 5.
W.O.C. 3,441 ft.

Herman Brown's No. 2 Bruni Est., 343 ft NE line, 260 ft. SE line of Blk. 2, Sur 5, Arispe grant.
T.D. 3,432 ft.; I.P. 30 bbls. per hr. on 5/16-in. choke.

Herman Brown's No. 4 Bruni Est., 418 ft. NE line, 260 ft. SE line, Blk. 7, Sur. 5, Arispe grant.
Rigging up.

Cole Pet. Co.'s No. 87 R. Benavides, 990 ft. SE line, 330 ft. SW line of Sur. 1.
T.D. 3,431 ft.; P.B. to 2,400 ft.

French Oil Co.'s No. 1 Perez, 330 ft. E line, 2,310 ft. N line of Sur. 460.
Abd. 3,817 ft.

Cole Pet. Co.'s No. 88 R. Benavides, 990 ft. SW line, 330 ft. SE line, of Sur. 1.
Derrick.

Highland Oil Co.'s No. 1 Bruni, 152 ft. SW line, 330 ft. NW line, Sur. 7.
Location.

Kalmore's No. 1-B Bruni, 330 ft. to W line, 418 ft. SW line, Blk. 23, Sur. 5, Adams Subd., Mariano Arispe grant.
No report.

O. W. Killam's No. 29 Bruni, 1,287 ft. SE line, 1,950 ft. SW line of Share 6, Arispe grant.
Drlg. 2,600 ft.

Sun Oil Co.'s No. 2 Bruni, 418 ft. NE line 260 ft. SE line, Blk. 9, Sur. 5.
Drlg. 1,605 ft.; 10-in. csg. at 300 ft.

Starr State Oil Co.'s No. 11 Yeager, 200 ft S line, 450 ft. E line of 632-ac. tract in Share 5 of Los Animas grant.
Fishing 3,418 ft.

BYERSVILLE—WILLIAMSON COUNTY

G. L. Rowsey's No. 2 Heep, 450 ft. SW line, 2,750 ft. from creek, H. White Sur.
Abd. 1,065 ft.

G. L. Rowsey, tr.'s No. 3-A Heep, 1,575 ft. SW of creek, 450 ft. SW line, H. White Sur.
T.D. 900 ft.; showing oil in Serpentine.

G. L. Rowsey's No. 1 Lange, 150 ft. SW line, 1,900 ft. N of creek, Hamilton White Sur.
Drlg. 490 ft.

G. L. Rowsey's No. 2 Lange, 2,850 ft. from creek, H. White Sur.
Location.

G. L. Rowsey's No. 1-C Sladek, 150 ft. NE line, 2,621 ft. N of creek in H. White Sur.
T.D. 1,027 ft.; I.P. 5 bbls. per day.

G. L. Rowsey's No. 2-C Sladek, 150 ft. NE line, 2,921 ft. N of creek, H. White Sur.
Abd. 1,050 ft.

BLAS URIBE—ZAPATA COUNTY

O. W. Killam's No. 9 Bruni, 180 ft. SE line, 400 ft. NE line of Blk. 9, Blas Uribe tract, Borrego grant.
Rigging up.

ESCOBAS—ZAPATA COUNTY

Trinity Drillers and J. C. McIntyre's No. 1 M. Trevino, 25 ft. W line, Blk. 13, Sur. 412, 150 ft. SE of Cerrito Blanco grant.
T.D. 1,246 ft.; I.P. 10 bbls. per day on pump.

United Prod. Co. et al's No. 1 Ramirez, 225 ft. from NE and SE lines of lease.
Coring 2,054 ft.

JENNINGS—ZAPATA COUNTY

Texas Co.'s No. 58 Whitehead, 15,875 ft SW line, 150 ft. SE line of Cerrito Blanco grant.
Drlg. 800 ft.

MARTINEZ—ZAPATA COUNTY

S. R. C. Oil Corp.'s No. 3-F Trevino, 261 ft. N line, 155 ft. E line of Blk. 21, Sur. 411.
Location.

RANDADO—ZAPATA AND JIM HOGG COUNTIES

Sulgrave Oil Co.'s No. 1-D Maryland Trust Co., 660 ft. S line and common lines of Blk. 3-4, Tract "D," Sur. 314.
Spudded.

Acidizing Brings Up Big Production From Hunton in Haury-Burrton Pool; Deeper Pay Opened

By JAMES McINTYRE

The Haury-Burrton Pool in eastern Reno County, Kansas, is developing into a pool of the first importance. It has been producing from Chat and Hunton lime and in the most recent checking up of the ptoential production of the field made in October it was credited with a potential production of 41,825 bbls. per day from Hunton lime and 17,083 bbls. from Chat. This potential, especially as it refers to the Hunton lime, has been greatly increased by recently completed wells and by wells which were acidized in the past week for the first time although they were completed some time ago. In addition to all this the Barnsdall Oil Co. went down to the Siliceous lime and had 3,300 feet of oil in the hole from that formation. No production test had been made, but it was planned to acidize the lime.

The Barnsdall well in question, No. 2 Sabin C, C SW NW SE Section 11-23-4w, found Siliceous lime at 3,775-84 feet, total depth. With the oil level at 3,300 feet, the swab was run and 74 bbls. of oil was recovered in three hours, lowering the level of the fluid 800 feet. The oil was 33.1 degrees in gravity at a temperature of 60° F. and contained 1 per cent of sediment. It is the first Siliceous lime showing in the field.

Olson Oil Co. and Shell Petroleum Corp.'s No. 2 Goering, C SE SW Section 26-23-4w, which was completed in May, having flowed 1,575 bbls. naturally in 24 hours from Hunton lime at 3,568-85 feet, was acidized in the past week and produced 2,093 bbls. in 18 hours.

Barnsdall Oil Co. and Indian Territory Illuminating Oil Co.'s No. 1 Baughman, NE cor. Section 34-23-4w, completed August 15 in Hunton lime at 3,587-95 feet, a 1,384-bbl. pumper, was acidized and made 3,344 bbls. of oil in 24 hours. It was given another acid treatment.

Olson Oil Co. and Shell Petroleum Corp.'s No. 3 Goering, NW cor. Section 35-23-4w, completed in September for 1,939 bbls. from Hunton lime at 3,575-95 feet, was treated with acid and made 2,867 bbls. in 24 hours, but after a second acidization it produced 4,265 bbls. on the first day's test.

National Union Oil Co.'s No. 2 Ackley, C NW NE SE Section 14-23-4w, had Hunton lime at 3,694-3,700 feet and produced 1,447 bbls. in 11 hours through a 3-inch flow line. A second flow line was installed and the well made 190 bbls. the first hour thereafter. It had not been acidized.

The Haury-Burrton Pool now has 23 Hunton lime and 63 Chat wells producing. There are 12 wells drilling in the field and 8 rigs up and 3 locations made.

Estimated Production

Estimated daily average production of Kansas for the week ending November 17 and for the preceding week follows:

	Barrels	
	Nov. 17	Nov. 10
Hollow	6,375	5,700
Ritz-Canton	10,500	10,900
Voshell	5,200	5,275
Johnson	1,785	1,870
Sedgwick County	7,375	7,650
Nikkell	5,375	5,600
Ellsworth County	3,330	2,920
Barton County	1,505	2,090
Rice County	13,487	13,350
Reno County	11,345	7,700
Ellis County	465	543
Kingman County	1,135	1,407
Stafford County	1,440	1,495
Russell County	7,400	6,250
Greenwood County	11,250	11,250
Butler County	19,100	19,000
Other pools	16,933	17,800
Total Kansas	123,900	120,600

Stanolind Oil & Gas Co. and Amerada Petroleum Corp.'s No. 1 Hilger-B, SW SW NE Section 16-26-4w, Reno County, was abandoned as a failure. It was given a drill stem test and produced 3 bbls. of oil and 10 bbls. of water from Siliceous lime at 4,196-98 feet.

In the Haury Pool, Texas Co.'s No. 1 Ediger, SE SE SW Section 2-23-4w, was abandoned. It had been acidized at a total depth of 3,380 feet with no results. Hunton lime at 3,644-54 feet was barren of oil.

National Union Oil Co.'s No. 1 Ackley, C SE SE Section 14-23-4w, was completed in Chat at 3,330 feet, total depth. It was acidized and while it is good for 17,000,000 feet of gas through bradenhead, it made only 24 bbls. of oil.

Olson Oil Co. and Shell Petroleum Corp. completed No. 1 Downie, SE SW NE Section 14-23-4w, which after an acid treatment produced 5,524 bbls. in 24 hours. Same operators have rig up for No. 3 Blake, 610 feet from south line and 660 feet from west line of SE Section 23-23-4w.

Barnsdall Oil Co. and Indian Territory Illuminating Oil Co. had rigged up No. 3 Baughman, SE SE NE Section 34-23-4w, and Deal Oil & Gas Co. rigged up No. 2 McElwain, NE NE SE Section 34-23-4w.

Olson Oil Co. and Shell Petroleum Corp.'s No. 2 Fast, C SW SE Section 25-23-4w, was a hole full of oil from Chat at 3,284-3,370 feet. It had not been tested. Same operators deepened No. 2 Garvin, C NW SE Section 35-23-4w, from 3,320 feet to 3,371 feet, and it flowed 657 bbls. of oil and about 9,000,000 feet of gas in 24 hours. Same operators have rigs up for No. 6 Goering-B, SW SW NW Section 35-23-4w, and No. 7 Goering-B, C SE NW Section 35.

Sumner County

Tom Palmer has material in for a wildcat test, No. 1 Wentworth, C NW NW NE Section 9-35-2, Sumner County.

Cowley County

W. E. Orr has spudded No. 1-A Melick, C NW SW Section 13-34-6, Cowley County.

J. Sooby completed two gas wells, No. 1 Gardner, NE NE SE Section 16-32-5, at 705-18 feet, good for 338,000 feet, and No. 2 Gardner, SW SE NE NE Section 16-32-5, at 715-32 feet, starting at 49,000 feet.

Harper County

Lario Oil & Gas Co. and others tested out their No. 1 Whelan, C NW Section 32-31-11w, and it pumped 100 bbls. of oil and 100 bbls. of water in 24 hours. It had been plugged back to 4,382 feet in the hope of getting a water shutoff. It had originally been drilled to 4,435 feet. It has not yet bkeen completed.

Butler County

Durham & Hartman's No. 1 Warner, NW NE NW Section 3-29-4, Butler County, was abandoned at 1,818 feet, a hole full of water from lime at 1,813-18 feet.

Sedgwick County

E. B. Shawver's No. 2 Brookings, NW SW SW Section 16-28-1e, Sedgwick County, flowed a potential of 414 bbls. in 24 hours from chat pay at 3,094-3,100 feet, which had been acidized. It was completed. No. 3 Brookings, SW NW SW Section 16, has reached the pond stage. Same owner's No. 3 Russell, SE SW SE Section 17-28-1e, flowed 127 bbls. per day from Chat at 3,084-3,110 feet, and was then acidized.

Dickey Oil Co.'s No. 1 Cook, NE SE NW Section 20-28-1e, flowed 127 bbls. in 19 hours from Chat at 3,071-3,112 feet, total depth. Same operator had material in for No. 1 Riley, SE NE SW Section 20-28-1e.

Sovereign Oil Co. has machine on the ground for No. 2 Scherger, 260 feet from south line and 180 feet from west line of NW Section 6-26-1e.

Rice County

Empire Oil & Refining Co.'s No. 1 Specht, NE cor. Section 20-20-10w, Raymond Pool, Rice County, pumped 123 bbls. of oil in 24 hours after an acid treatment in Kansas City lime at 3,041-3,106 feet. It was then reacidized.

Lebow and others have rig on the ground for No. 1 Doll, SE SE SW Section 30-19-9w, Chase Pool. Phillips Petroleum Co. has rig up for No. 2 Link, NW NW SW Section 21-19-9w, Beyer Pool.

Keith and others deepened No. 1 Grove, SE SE NW Section 29-19-9w, in the Chase Pool from 3,241 to 3,244 feet and it pumped 1,422 bbls. in 21 hours. Same operators' made a location for No. 2 Grove, NE SE SW Section 29.

The Texas Co.'s No. 1 Grove, NW NE NE Section 29-19-9w, in the Chase Pool, produced a potential of 1,480 bbls. in 24 hours from Siliceous lime at 3,185-98 feet. It had not been acidized. The well was completed, and the company has ponds dug for No. 2 Grove, NE NW NE Section 29, and a location made for No. 3 Grove, NE cor. Section 29.

McPherson County

In the Voshell Pool, McPherson County, Shell Petroleum Corp.'s No. 5 Koehn, SE NW NE Section 16-21-3w, was shot with 30 quarts at 3,390-3,405 feet, and it swabbed 105 bbls. in 12 hours. It was given a 50-quart shot and swabbed 85 bbls. in 11 hours.

Stafford and others were deepening No. 1 Krehbeil, NW NW SE Section 27-21-3w.

J. H. Miller, Stanolind Oil & Gas Co. and Amerada Petroleum Corp.'s No. 5 Flock, NE NE NW Section 1-20-2w, which pumped 254 bbls. of oil in 15 hours, with gas at the rate of 3,000,000 feet, from Chat at 2,951-90 feet, was drilling at 3,004 feet.

Helmerich & Payne and Shell Petroleum Corp. have abandoned the location for No. 7 Russell, 330 feet south and 1,334 feet west of NE cor. Section 23-19-2w, on which a rig had been built, and same operators completed No. 4 Russell, NE SW NE Section 23-19-2w, which started off at 25 bbls. of oil per day and a like amount of water from Viola lime at 3,373-88 feet, which had been acidized.

Ellsworth County

Joe Aylward completed a failure in No. 1 Stratman, SE SE NW Section 1-17-10w, Stratman Pool, Ellsworth County. It was drilled to Siliceous lime at 3,242-88 feet, with no results and was plugged back to 3,278 feet and shot with 40 quarts of explosive, still with no oil or gas showing.

Smith & Ash and Gypsy Oil Co. completed No. 1 Wessler, NW cor. Section 19-17-9w, which made a potential production of 629 bbls. in 24 hours from Siliceous lime at 3,275-83 feet, which had not been acidized.

In Russell County

Phillips Petroleum Co.'s No. 1 Holland, SW cor. Section 13-14-15w, Russell County, had a hole full of oil from Siliceous lime at 3,220-25 feet, total depth. It had not been tested.

Eldorado Refining Co.'s No. 1 Stratman, SW SE SE Section 32-14-11w, was dry and abandoned at 3,250 feet. This was a wildcat test. It had Siliceous lime at 3,124 feet and the hole filled with water at 3,245 feet.

Stanolind Oil & Gas Co.'s No. 24 Austin, NE SE NW Section 8-12-15w, an old well, deepened from 3,016 feet to pay at 3,220-35 feet, pumped 48 bbls. of oil and 390 bbls. of water. It was completed. Same operator deepened No. 22 Oswald, NE SE NW Section 8-12-15w, from 3,154 feet to granite at 3,220 feet, total depth 3,245 feet, pumped 50 bbls. of oil and 75 bbls. of water.

The Texas Co.'s No. 4 Jacobs, SW NW SW Section 31-12-15w, acidized in Oswald lime at 2,988-3,085 feet, pooduced 300 bbls. in 24 hours and was completed.

E. Liggett's No. 1 Coles, SE SE NE Section 17-11-15w, was abandoned at 3,300 feet. It showed a small production of oil at 3,153-70 feet.

Carl Lebeck abandoned No. 1 Spicer, NW cor. Section 21-11-15w, at 3,275 feet. It was a hole full of water at 3,-356 feet but had a 5-bbl. showing at 3,340-45 feet.

Wildcat Operations in Kansas

Week Ending November 17

(Descriptions are East unless marked otherwise)

BARBER COUNTY

Lario O. & G. Co.'s No. 1 Whelan, C NW Sec. 32-31-11w.
Chat 4,355-4,435 ft.; P.B. to 4,382 ft.; pumped 100 bbls. oil, 100 bbls. wtr.

BARTON COUNTY

D. I. Hall et al's No. 1 Arnold, SE SE SW Sec. 19-18-15w.
Rig.

Murphin and Downing's No. 1 Lanterman, NW SE Sec. 15-19-11w.
10-in. csg. 2,160 ft.; drlg. 2,200 ft.

C. L. Price et al's No. 1 Ehrlich, NW SE Sec. 10-16-13w.
T.D. 360 ft.; fishing.

Treleaven & Brimm et al's No. 1 Haas, SW cor. Sec. 30-18-15w.
Set 15-in. csg. 335 ft.; drlg. 415 ft.

Walter Shearen et al's No. 1 Kempler, SE NE NE Sec. 31-18-11w.
S.D. 360 ft.

BUTLER COUNTY

Seibel, Great Basin Oil Co. et al's No. 1-A McKinley, NE SE Sec. 19-29-4.
K.C. lime 1,888-1,915 ft.; will acidize.

F. H. Unruh et al's No. 1-A Joseph, SE SW NW Sec. 12-25-4e.
Rig.

CLAY COUNTY

Seidel Bros.' No. 1 Younken, C S½ SE NW Sec. 21-9-4.
T.D. 1,391 ft.; U.R. 8-in. csg.

Severs et al's No. 1 Meyers, NE NW NW Sec. 4-10-4.
Mississippi lime 1,775 ft.; T.D. 1,824 ft.

COWLEY COUNTY

Ben Gralapp's No. 1 Kukuk, SW SW NW Sec. 6-33-4.
Drlg. 670 ft.

Otstot et al's No. 1 Eckhardt, SE NW Sec. 15-35-6.
Spudded and S.D.

DICKINSON COUNTY

Dutch Oil Co.'s No. 1 Phillips, C NE NW Sec. 15-15-1e.
Set 8-in. csg. 2,500 ft.; S.D.

ELK COUNTY

Lassen's No. 1 Ferguson, SE SE SW Sec. 21-30-8.
Drlg. 1,105 ft.

ELLSWORTH COUNTY

Ainsworth Bros.' No. 1 Charvat, NE NW NE Sec. 33-15-10w.
Set 8-in. csg. 2,795 ft.; T.D.

Eldorado Ref. Co.'s No. 1 Stratman, SW SE SE Sec. 32-14-11w.
Dry and abd. 3,250 ft.

(Continued on Page 87)

Acreage and Sand Thickness as Factors in Proration

By M. ALBERTSON
Shell Petroleum Corp., Houston, Tex.*

The purpose of this paper is to define the true position of acreage and sand thickness as factors in the proration of oil and gas.

Since proration must be proportional to share, or interest, it is clear that the size of the various shares, or interests, must be measured either absolutely or relatively. This is necessary in order to establish the proportionate share of the allowable for each operator. What standards must be used in measuring these shares or interests? It is assumed that this must be done in accordance with the factors which determined values at the time restriction of production began and prior thereto. The guiding principles come from the experience of the industry before proration. Thus the share, or interest, or the factors determining such share, or interest, which any operator was assured of when the industry was operated without restraint as to number of wells drilled, or as to rate of production, becomes the true measure of his proration allowance. If these cannot be fixed in detail, and it must be conceded that they cannot, there is much to recommend that the average result of such method of operation be taken as the new standard of values.

It is desirable to mention the laws and regulations for the prevention of waste. These define the limits within which proration may be applied. Such laws and regulations may, or may not, be applied proportionally to the shares or interests of the operators existing prior to the application of such legislative prevention of waste. This depends upon conditions in each pool being considered. These laws and regulations in no way alter the basic requirements of proration to consumer demand but only define limits of its application. The marginal well law in Texas may be taken as an illustration.

Must Consider Acreage

When unrestricted drilling and production was the prevailing method of oil field operation, acreage was a factor of much greater importance in determining value than in restricted fields where acreage is not a factor in allocation. If all factors other than acreage were of equal value, total values were proportional to acreage. The number of wells that can be sustained by any tract depends upon the number of acres in the tract, provided other things are equal. Through the long history of the industry, acreage has been a dominant factor in setting values. It is plain, therefore, that acreage is not merely a proper factor in any proration plan, but it is also an essential factor. It is dominant when other factors are equal. There can be no proration of an oil field unless acreage is given due weight. No restriction plan which omits acreage is a proration plan. Without acreage as a factor, any restrictive plan which limits the output of an oil field to market demand is a monstrosity which may confiscate large values from some owners and give such values to others. The value of an oil field may even be destroyed by such restriction method.

An example of the monstrous nature of a restriction plan which omits acreage as a factor is the case where a 1-acre tract adjoins the corner of a 40-acre tract. Suppose one well is drilled in the center of the small tract and offset at equal distance on the 40-acre tract. Suppose further that the average yield per acre is 30,000 bbls., and that the sand thickness and well potentials are equal on the two tracts. If 10-acre spacing is sufficient to drain the sand, the owner of the 40-acre tract may be expected to drill a total of four wells. With a slow rate of production, and highly permeable sand such as that in East Texas, each well will produce approximately the same amount of oil. Thus the well on the 1-acre tract gets one-fifth of the 41 acres or 8 1/5 acres which equals 246,000 bbls. Under unrestricted production this well probably would not have secured over 40,000 bbls. and in many cases would not have repaid expenses. The only means by which the owner of the 40 acres could prevent drainage loss of oil would be to drill to equal density on his tract. This would require 40 wells and permits for these wells would probably not be granted. If the wells are drilled and if 30,000 bbls. did not repay the cost of a well plus lifting expense, and royalty, etc., the value of the tract is destroyed. In any case the value is greatly reduced. The 1-acre tract also becomes valueless if other adjacent tracts are protected. This also becomes true for the entire field.

Factor in Various Ways

Acreage may be included as a proration factor in various ways. If all wells are spaced evenly, the acreage factor has been included and can be removed only by deliberate efforts made for that purpose. Whenever spacing does not prevail, any use of well potentials except on an areal basis brings about an arbitrary restriction which is not proration. Such application of potentials will produce disastrous results in any pool unless a sufficient number of operators determine their drilling program with due regard to acreage. Acreage has then become a factor automatically even though it has not been formally included. Potential may be used as a per-acre quantity, although it would be more accurate to apply it on the basis of unit volumes of oil-bearing formation. Potential could thus be most accurately used for proration if allowables were computed on the basis of potential per acre foot of sand.

If any additional considerations are necessary to define the essential place of acreage in proration, they may be provided by pointing out that oil is of necessity measured by units of volume. The value of an oil property depends upon the net volume of oil which it will yield and the price obtainable per unit of volume. Something equivalent to volume measure is thus necessary for measuring the value of an oil property. Hence a proper valuation cannot be accomplished except by including the acreage factor.

Prior to limitation of production, an operator could drill in proportion to his acreage. By this means, he could defend his property against the efforts of others to capture oil from his property. Proration does not exist when this right is taken away from some operators and not from others, unless due compensation is given by the allocation formula.

Uniform Spacing

Under any form of restriction to consumer demand, uniform spacing of wells, or due compensation for the acreage factor by production allocation, is an absolute requirement of proration. The present small allowable per well in most American fields makes it impossible for an operator to protect his property from drainage even if unrestricted drilling should be allowed. This is due to the fact that with small rates of production migration of oil across property lines cannot be stopped except by uniform well spacing. If large tracts are drilled as densely as 1-acre tracts, for instance, the field becomes worthless. The cost of the oil exceeds its market value. No method of protection is possible except proportionate fixing of allowable production.

Thickness of productive sand is a dimension additional to acreage which is required to establish the value of an oil property. Where it can be determined with reasonable accuracy and at a reasonable cost, it may properly be included directly as a proration factor. There are other factors which may be used to express sand thickness. In some cases well potential can be made to express sand thickness indirectly and may be more practical. In other cases reservoir pressures may be depended upon to express indirectly the equivalent of sand thickness. Thus sand thickness, while a proper factor, is not necessarily included directly as such. Its equivalent in some form must, however, be included in any restriction to consumer demand if the scheme is to be proration.

*Before A.P.I., Dallas, Tex. Author's title: "Acreage and Sand Thickness as Factors in Proration."

Showing a part of the several hundred oil men who were served at the barbecue given by W. R. Boyd, Jr., at his lodge near Teague, Tex., Nov. 16

Chicago Area Tank Car Gasoline Market Quiet

(Continued from Page 54)
consumption is still moderate but sufficient to make prices strong.

Heating Oils

Heating oil demand has been spotty, but substantial on the whole and orders are being taken at prices which indicate a firm, strong market, with comparatively little offered. This applies to lower grade fuels as well as to distillates, etc.

Industrial Products

General industrial activity in this entire region seems to be stepping up slowly, and heavy fuels and gas oil may be just a shade firmer, accordingly. No great surplusage is disclosed in current offerings. Stocks of these products are far from burdensome. U.G.I. gas oil is still scarce.

Lubricants

Outlook for lubricants in the market is uncertain and continues to have conflicting tendencies. These products have been dull and have resisted much further declines, but seem to be waiting for improvement in the eastern crude situation before showing much improvement.

Naphthas

Solvents and naphthas remain slow and dull, so far as concerns new features. Volume of business has not expanded, but demand for most of the items is about holding its own.

Wax

There has been no change of importance in wax. Stocks appear to be still increasing moderately, but this is still not generally considered as alarming to the price position. Inquiries are of moderate extent.

Discussion of Laboratory and Road Test Correlation

(Continued from Page 53)
the inclusion of the figure on fuel No. 14 is the fact that it was rated in nine cars only, and the detonation on several of these cars was so bad that it was impossible for observers to obtain accurate ratings. The committee had previously agreed that it would be necessary to secure ratings on at least 15 cars in order to include any fuel rating.

It would appear logical to assume that, when a reference fuel equivalent to say, 90 per cent C-8 could be rated satisfactorily in a given car and an unknown fuel did not knock in that car, the unknown fuel should be given a rating of at least 90 per cent C-8. This was not done by the committee, but has been done by our laboratory after a careful examination of the original records taken at Uniontown so as to eliminate any such tests, except when taken on the same day as the ratings of the reference fuels. In Tables 1 and 2 you will observe the effect this has upon the average deviations from the A.S.T.M. ratings. It will be observed that in some cases a variation as great as 0.9 octane number is effected by this interpretation of the road test data.

An examination of the data given in the original report shows a marked and unexplained difference in correlation for the branded and unbranded fuels tested. These results are shown graphically in Figure 1 of the report. It will be seen that the branded fuels show on the average 0.8 octane number lower by the Hill rating than by the A.S.T.M. method. On the other hand the unbranded fuels show 1.1 octane number higher road rating on the Hill than was found by the A.S.T.M. method, or a total difference of 1.9 octane numbers between the averages of the branded and unbranded fuels. Furthermore, the report states "the maximum variations from the A.S.T.M. method, which occurred in the cases of fuels No. b-8 and No. 14, are plus 2.7 and minus 1.9 octane numbers, respectively." The report does not emphasize the fact that these two fuels are not exceptional cases, as will be seen from the following tabulation:

No. 14	—1.9
No. 6	—1.6
No. 13	—1.1
No. b-9	+1.0
No. b-7	+1.1
No. b-1	+1.3
No. b-5	+2.1
No. b-8	+2.7

It is therefore plainly evident that eight fuels, or exactly 50 per cent of all fuels tested, show a deviation from the A.S.T.M. ratings of 1 octane number or more, and such variations certainly cannot be said to be "within the limits of experimental error of the technic employed," and do not justify the impressions conveyed by the report that the road ratings check the A.S.T.M. ratings within 0.36 octane number.

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Among Gulf Coast Drilling Contractors

Steen Drilling Co. has run 6,120 feet of 7-inch O.D. casing on its No. 1 Stanzel, 1 mile north of the small seacoast town of Port Lavaca in Calhoun County, and early next week will set 40 feet of liner and screen in the hole, which is bottomed at 6,160 feet. A drill stem test at 6,145 feet showed some gas, but with little pressure. A second drill stem test at 6,160 feet, using the same testing tool seat, showed 500 pounds of pressure, and some oil, in three minutes. About 8 feet of good oil sand is reported to have been cored, oil being of 52.9 gravity. Some geologists have predicted a sizeable field is likely to be developed as a result of this wildcat test. The well will be finished Wednesday or Thursday of this week. Steen Drilling Co. controls in the neighborhood of 1,500 acres offsetting the well, and members of the company are quite optimistic over the outcome. The contract depth on this well, which was dug with some bottom hole money contributed by companies interested in the area, was 6,000 feet. The final 160 feet, which brought success to the venture, was drilled by Steen Drilling Co. The contractor's persistence in going ahead lifted No. 1 Stanzel out of the "dry and abandoned" column and gives it considerable likelihood of becoming the discovery well in a new field.

To facilitate the conduct of his business in West Texas and Oklahoma, where he has a number of rigs running, Carl B. King will open an office at 1509 Tower Petroleum Building, Dallas. Mr. King has one rig running at this time in the Gulf Coast for Reynolds and others on a wildcat about 3 miles from the town of Montgomery, Montgomery County.

Alamo Drilling Co. has set 7,647 feet of 7-inch O.D. casing on its well for C. B. Bunte, Inc., at Eureka Heights, north limits of the city of Houston. Casing was run following a drill stem test which showed the well is good for a commercial producer. Drilling contractors last week were drilling cautiously with 6,655 feet of open hole which, in the Gulf Coast, is something to keep even the "big boss" sleeping lightly. Separators and tanks have been moved to location, and plugs will be drilled in the next several days.

Turnbull & Irwin have completed their contract with the Devonian Oil Co. in Victoria County, and No. 1 Fagan has been abandoned at 6,010 feet. Rig will be moved to a new location near Laward, Jackson County, where a well will be drilled for Atkins & O'Neil. On its No. 1 Sutherland, Brazoria County wildcat, the company is drilling at 4,250 feet. On its No. 1 Lynott & Buffum, Liberty County, the company is drilling and coring at 7,390 feet.

John Deering has made a new location in the Batson Field, Hardin County, for Deering and Batson Oil Co., following successful completion of a well in this field. Same contractor is also drilling a well in Madison County for Deering & Kaiser, and has a third rig running in the Pierce Junction Field for Deering & Cogswell.

L. W. Capps is coring in his second well on the San Felipe Dome, near Brookshire, and is preparing to set casing at 5,364 feet for the Naylor Oil Co. at Rabbs Ridge, Fort Bend County.

George Echols has a new location to drill for the Humble Oil & Refining Co. in the Greta Field, and another new location to drill for the Quintana Oil Co. in Austin County, near Sealy. Echols also has a rig running for the Sun company in Starr County, and another rig running for the same company on the Arthur East ranch, Jim Hogg County. A fifth rig is drilling in East Texas for the Houston Oil Co.

Jeff Hooper has shipped a rig to Hidalgo County, Sam Fordyce Field, to drill a well for the Cosmos Petroleum Corp. A second rig is running for Sid Wheless in Austin County, near Sealy.

Harrison & Abercrombie's No. 1 H. F. Bernard Land & Development Co.

M. G. (Red) Early, general superintendent for J. S. Abercrombie, pioneer Gulf Coast contractor, and one of the drilling crews on Harrison & Abercrombie No. 1 Bernard Land & Development Co., Old Ocean area, Brazoria County, recently completed as the third deepest commercial producer in the Gulf Coast, having been bottomed at 8,651 feet. Members of the crew, from left to right, are: C. H. Ellis, G. W. Wisley, J. Blum, W. Edling, R. E. Lejeune. The well is at present making 250 bbls. per day of 66 gravity oil through a 5/32-inch choke

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Producer on Four Isle Dome, Terrebonne Parish; First Showing Found in Calhoun County Test

By F. L. SINGLETON
Gulf Coast Bureau, The Oil and Gas Journal

HOUSTON, Tex., Nov. 19.—Completion by the Texas Co. of its first producer on the Four Isle Dome in the coastal marshes of Terrebonne Parish, Louisiana, late in the week marked the opening of a new field in the Gulf Coast, with prospects for two additional new fields to be proven early this week, one at Eureka on the outskirts of Houston and the other near Port Lavaca in Calhoun County.

The Four Isle discovery well is Texas Co.'s No. 4 State, Section 24-21s-16e, completed flowing at the rate of 2,000 bbls. of 44.5 gravity oil per day through a one-half inch tubing choke, with tubing pressure 910 pounds. It is producing from sand topped at 5,611 feet and bottomed at 5,639 feet, the total depth. Nine and five-eighths inch casing was cemented at 5,594 feet.

It is one of a group of eight salt domes, within a radius of 50 miles, which have been developed simultaneously by the Texas Co. on its extensive development program launched in 1929 after the company had agreed to take an operating contract with the Louisiana Land & Exploration Co. to develop its properties. The latter company retains a one-quarter royalty interest. Out of the eight domes only one now remains to be proved productive, this being Bay Junop. The best productive domes so far have been Lake Barre and Caillou Island in Terrebonne Parish and Leesville in LaFourche Parish. The other domes include Dog Lake and Bay St. Elaine, Terrebonne Parish.

Harris County

In the Eureka district, Harris County, plug is expected to be drilled by the middle of the week in C. B. Bunte, Inc.'s No. 1 Laura Lackner, a wildcat test, just northwest of the city limits of Houston, which indicated production late last week when it tested 200 pounds of gas pressure in four minutes and 500 pounds in eight minutes on an 11-minute drill stem test, with the seat at 7,647 feet. The test was made through a one-quarter inch choke on top and bottom and the operators recovered 150 feet of drilling mud, slightly cut with a good odor of distillate. The hole is bottomed at 7,695 feet, with 7-inch casing cemented at 7,647 feet. The test is on a large block of acreage in the Henry Reinerman Survey and if productive will open a new field for the Cockfield formation topped in the test at 7,439 feet. Elevation is 82 feet.

Calhoun County

The other prospective pool opener is Steen Drilling Co.'s No. 1 Stanzel, a wildcat 1 mile north of Port Lavaca in the A. Esparanza Survey, Calhoun County. It is bottomed at 6,168 feet and on a drill stem test from 6,100-68 feet it tested 500 pounds of gas pressure in three minutes through a three-eighths inch choke on top and bottom and recovered one joint of drilling mud cut with oil which tested 52 gravity. There was no showing of salt water. Seven-inch casing has been cemented, and it is due to be tested the first of the week. The producing horizon has not definitely been established, but it is thought to be the Frio formation, productive in many of the lower Gulf counties. This will be the first production of any kind for Calhoun County.

Brazoria County

Harrison and Abercrombie's No. 1 Bernard River Land & Development Co., Old Ocean area in Brazoria County, which opened a new field last week, began making salt and brackish water shortly after it was completed, and it is now producing 250 bbls. of net oil per day and 20 per cent water through a five-thirty-seconds inch choke with tubing pressure 1,600 pounds.

The test is on a block of approximately 8,000 acres centering in the Charles Breen Survey, western part of the county, and is producing from a total depth of 8,651 feet. Operators have erected two 1,000-bbl. storage tanks and one 1,500 gun barrel tank. A 2½-inch pipe line has been laid from the well to the Missouri Pacific Railroad, 1 mile due south of the well, and the operators are moving the oil by tank car to the Coastal Oil Transport Co. at Houston, of which Harrison and Abercrombie own a controlling interest. No new locatons have been announced definitely for the field.

Galveston County

In the Dickinson area, Galveston County, Humble Oil & Refining Co.'s No. 1-B Maco Stewart still remains to be completed. After swabbing the well for 10 days without results the operators are preparing to reset the screen. The packer is being cut off at 7,600 feet after 2-inch tubing and 5-inch screen had been pulled. It is testing at a plugged back depth of 8,024 feet. Location is one-half mile west and slightly north of the company's No. 1 Maco Stewart which was abandoned after it blew out and caught fire several months ago. One-half mile north of Humble Oil & Refining Co.'s No. 1-B Maco Stewart, Pure Oil Co.'s No. 1 Shelor, in the B.B.B.&C. Survey, is shut down at 7,986 feet and the company is preparing to make an electrical coring test. In a core from 7,917 to 7,937 feet it is reported to have cored sand and shale which carried a showing of gas. Based on top of the Frio the test is running about 119 feet higher than Humble Oil & Refining Co.'s No. 1-B Maco Stewart.

Red Bluff Wildcats

Harris County got two more wildcat locations. In the Red Bluff area, Esco Oil Co. is digging pits for its No. 1 E. P. Seureau, in the W. P. Harris Survey. Location is 3,232 feet from the west line and 2,215 feet from the south line of the E. P. Seureau 350-acre tract. In the Arthur McCormick Survey, Abstract 46, T.S.&F. Oil Co. has derrick up for its No. 1 J. B. Hine. W. U. Paul and others' No. 1 E. M. House, a wildcat in the extreme northeastern part of the county, is preparing to start after being shut down for several weeks. The operators are washing to the bottom at 4,090 feet.

Hardin District

Eleven miles north of Liberty, in the Hardin district, Turnbull and Irwin's No. 1 Lynott and Buffum wildcat lost some of its interest the past week after it had cored below 7,380 feet. With the Cockfield formation topped at 7,045 feet, it is 345 feet in this formation which is considered unfavorable. In other fields producing from this formation, production has been found around 200 feet below the top of the Cockfield. It is reported the operators will core to the contract depth and make an electrical coring test. It is in the James Robeson Survey.

Victoria County

In Victoria County, two wildcat tests were abandoned. In the Peter Teal League, Abstract No. 112, Devonian Oil Co. quit its No. 1 J. M. Fagan heirs at a total depth of 6,010 feet. The only showing was reported at around 1,700 feet. In the northern part of the county, Texas Co. abandoned its No. 1 Potthast, 1 mile south of its No. 1 Midgett, completed for a gas well several weeks ago, at a total depth of 3,075 feet. A drill stem test was made from 2,990-3,075 feet and it tested 1,350 feet of salt water with no gas pressure through a three-eighths inch choke on top and a five-sixteenths inch choke on bottom. Location is in the T.&N.O. Survey.

McFaddin Field

The McFaddin Field, southern Victoria County, got its second producer, when Texas Co.'s No. 2 McFaddin was completed for an initial production of 220 bbls. of oil per day through a three-sixteenths inch tubing choke, with tubing pressure 750 pounds and casing pressure 1,575 pounds. This well was originally completed several years ago as a gas well at 2,025 feet. The gas was used as fuel for other tests. The first oil well was the company's No. 4 McFaddin, which produced for several months but later was abandoned after it had been drilled deeper. The other wells are gas wells. Texas Co. McFaddin area is just north of Humble Oil & Refining Co.'s producers in the O'Connor Field across the river in Refugio County.

Humble Oil & Refining Co.'s No. 2 McFaddin, also in the McFaddin district, but on a block adjoining to the east that of the Texas Co., has been abandoned at a total depth of 6,001 feet. Location is in the C. O. Edwards Survey.

Fort Bend County

On the east flank of the Boling Dome, southwestern part of Fort Bend County, Allied Minerals, Inc.'s No. 1 J. R. Farmer, which was being worked over, opened a new producing horizon when completed as a producer from the Marginulina formation.

This is the third time the well has been recompleted. It was first completed the latter part of July for an initial production of 800 bbls. in the Frio formation from sand at 4,399-4,428 feet, but was later deepened to 4,442 feet after production had dropped off due to water intrusion, attributed to a break in the casing. It flowed for several weeks, when production again showed a decline. The operators then plugged the hole back to 3,125 feet, sidetracked and redrilled to 4,361 feet, total depth. Sand and shale were encountered from 4,328-61 feet, with the last 13 feet reported as saturated sand. When first tested the well flowed an estimated 500 bbls. per day, but it is now being flowed through a three-eighths inch choke and is producing around 300 bbls. per day. One mile south, the same operator is drilling below 3,687 feet in sandrock on its No. 1 E. C. Farmer. It

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is on a 50-acre tract in the James Scott Survey. On the west flank of the dome, southeast part of Wharton County, in the John Huff Survey, the company's No. 1 J. H. Blackwell is drilling below 3,127 feet in hard lime.

In the extreme northeastern part of Hardin County, Kirby Petroleum Co.'s No. 1 Southwest Settlement & Development Co. has been abandoned in the Cockfield at a total depth of 5,648 feet, after testing salt water. Location is in Section 226, H.&T.C. Survey. This is the third dry hole to be drilled by the company in the area. The other tests are located to the north in Polk County.

Waller County

On the San Felipe Dome, Waller County, DeArman Brothers' No. 1 J. T. Smith, about 1 mile north of the Capps' discovery well recently completed, has been abandoned at 3,436 feet. On a drill stem test from 2,872-99 feet it showed considerable salt water. Location is in the John McFarland Survey. Due south of the discovery, Seaport Oil Co.'s No. 1 J. W. Avery is coring in sandy shale below 2,852 feet. Location is 1,500 feet south of the discovery in the John McFarland Survey.

Kittrell Field

In the Kittrell Field, southern Houston County, Humble Oil & Refining Co.'s No. 2 Shaw, 660 feet northwest of the discovery, made a 14-minute drill stem test in sand and sandy shale from 1,974-2,000 feet and it tested 1,400 feet of oil and 40 feet of drilling mud through a three-eighths inch choke on top and bottom, but registered no gas pressure. It is now shut down for orders and will probably be put on the pump. This is the second sand to be encountered which carried a showing of oil. The first sand was between 1,100 and 1,200 feet. The company's No. 1 Texas Long Leaf Lumber Co., one-half mile north of the discovery, is fishing for a stuck drill stem at 3,870 feet. In the adjoining counties of Trinity and Walker, two wildcat locations were made the past week. In Walker County, Texas Co. has made location for its No. 1 Thompson Brothers Lumber Co., 10 miles southwest of the Kittrell Field and 1½ miles northeast of Kilgore and others' No. 1 Lamkin, a drilling test in the J. J. Holcomb Survey. This is the first major company to start active operations in this area since the discovery of the Kittrell Field. In the southwest part of Trinity County, near the Houston County line, Boone Brothers have spudded No. 1-C Texas Long Leaf Lumber Co., 900 feet due north of the northeast corner of the A. Henry Survey, Abstract No. 255.

Montgomery County

In the northeast corner of Montgomery County, Travis Baker and T. T. Word of Houston have assembled approximately 5,000 acres and will drill to the Cockfield formation. Active operations are due to be started by December 10. The block centers around the Jose Maria De La Farza by Juan Cameron Survey and takes in the southeast corner of Walker County and the west central part of San Jacinto County. Centering around the southeast corner of the Thomas James Survey, Charlie Gohlson of Houston is assembling a block of approximately 3,000 acres and will drill a test to the Cockfield formation within 60 days from date of completion of the block.

Polk County

The Livingston Field, Polk County, was extended a short distance north by B. M. York and others' No. 1 Kingsbury County Holding Corp. when it flowed 99 bbls. in 19 hours through a ten-sixty-fourths inch choke, with tubing pressure 350 pounds and casing pressure 1,210 pounds. It is bottomed at 4,346 feet with 7-inch casing cemented at 4,330 feet. Top of the sand was 4,335 feet. Location is in Tract 18 in the A. Viesca Survey. Same operators have derrick up for their second test, 463 feet from the east and west lines and 330 feet from the south line of Tract No. 19, in the A. Viesca Survey.

LOUISIANA GULF COAST

In the Louisiana Gulf Coast, Edgerly Oil Co.'s No. 2 Bright-Penn, in Section 28-9s-11w of the Edgerly Field, Calcasieu Parish, made an unusual production record for the field when it blew in as a large gusher while being rigged up with a pumping unit, and blew wild for two days before being controlled. It was making approximately 2,000 bbls. per day while flowing wild, but is pinched in to 300 bbls. per day. It is bottomed at 3,727 feet in sand. Location is in the northeast part of the field.

Bosco Field

Superior Oil Producing Co.'s No. 2 Iseringhauser, in the Bosco Field, Acadia and St. Landry Parishes, was completed for an initial production of 914 bbls. in 24 hours through a one-sixty-fourth inch choke on the casing and a fourteen-sixty-fourths inch choke on the tubing, with casing pressure 2,500 pounds and tubing pressure 1,900 pounds. Location is in Section 35-8s-3e. Northeast of the discovery well, the company's No. 1 Trahan in Section 27 tested salt water at 7,849 feet and is now drilling in sandy lime below 8,071 feet. No. 2 Comeaux, in Section 34, is to be completed this week. It is bottomed at 8,901 feet with 7-inch casing cemented. Location of the three new tests announced last week are No. 3 Comeaux in Section 34, No. 1 B. Iseringhauser in Section 27, and No. 1 Prejan in Section 34.

In St. Landry Parish, Gulf Refining Co. has taken a 6,100-acre block centering around Townships 7s and Range 5e. The block takes in nine full sections and parts of six other sections.

Humble Oil & Refining Co.'s No. 1 Industrial Lumber Co., a wildcat in Section 21-3s-5w on a 9,600-acre block in Allen Parish, has been abandoned in shale at 8,094 feet. The company has four other wildcats drilling throughout the district, the most advanced tests being in Calcasieu and Evangeline Parishes. Its No. 1-B Industrial Lumber Co., 5 miles northeast of Starks, is drilling in sand below 5,042 feet. Location is in Section 27-8s-12w. Northwest of Reddell, in Evangeline Parish, its No. 1 Hass, in Section 22-4s-1w, is drilling in sand below 5,065 feet.

(Continued on Page 78)

Wildcat Operations on Gulf Coast

Week Ending November 17

SACOOON BEND—AUSTIN COUNTY

Humble O. & R. Co.'s No. 14 Paine. T.D. 4,115 ft.; W.O.C.

Humble O. & R. Co.'s No. 1 Mueller. T.D. 4,124 ft.; W.O.C. in sand.

Humble O. & R. Co.'s No. 1 Hill, Wm. C. White Sur. Location.

Humble O. & R. Co.'s No. 6 Alberta Diemar, 525 ft. at R/A from NW line, 337 ft. at R/A from SW line, Wm. Harvey Sur. Drlg. sand and boulders 3,228 ft.

Humble O. & R. Co.'s No. 10 Arthur Marten, 315 ft. from SE and 312 ft. from SW line of lease, Wm. C. White Sur. Rigging up.

DANBURY—BRAZORIA COUNTY

Shell Pet. Corp.'s No. 7 Blakely-Winston, 63 deg. 11 min. E, 5,540 ft. N, 26 deg. 49 min. W, 300 ft. from SW cor. of Blakely-Winston 640-acre tract, H.T.&B. Sur. Drlg. sticky shale 3,135 ft.

Shell Pet. Corp.'s No. 3 Haury, 600 ft. SE of No. 2 in line with No. 1 and No. 1 Blakely-Winston, H.&T.B. Sur. No. 13. Coring hard shale 6,657 ft.

DAMON MOUND—BRAZORIA COUNTY

Gulf Stream, Inc.'s No. 1 Cave Heirs, 160 ft. from N line and 60 ft. from E line of Lot C, Blk. 56, A. Darst Sur. Location.

Seco's No. 1-D Wisdom, 25 ft. from S and W lines of Blk. D, Lot 5, A. Darst Sur. No report.

Intercoastal Oil Co.'s No. 12 Wisdom, 90 ft. from N line and 35 ft. from W line of Lot A, Blk. 51, A. Darst Sur. Drlg. shale 2,815 ft.

MANVEL—BRAZORIA COUNTY

Texas Co.'s No. 12-B Belcher, W of No. 10-B Belcher, H. N. Little' Sur. Drlg. sand and boulders 2,525 ft.

(Continued on Page 87)

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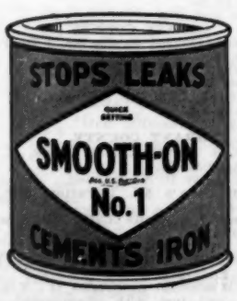

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Southern Extensions to Crescent and Fitts Pools Featured Week in Oklahoma; Production Up

By JAMES McINTYRE

The Eason Oil Co. extended the Crescent Pool in Logan County, Oklahoma, one location south with its No. 1 Harns, NE cor. Section 4-16-4w. It has Wilcox sand at 6,276-90 feet. It was bailed all day Saturday and Sunday, the recovery of oil being sufficient to warrant an estimate of at least 500 bbls. a day on the well when completed. It had not been given a production test. Running north and south in the Crescent Pool is a line of eight wells, each in the center of a 40-acre tract, all of them productive. The Eason well makes the ninth in the row, but it is in the middle of a 10-acre location, a little out of line with the other eight. Altogether there are 20 producing wells in the pool, including one in Layton sand.

Eason Oil Co. of Enid has petitioned the Corporation Commission to cancel all overproduction caused by completion of wells in the Crescent Field, Logan County. Hearing was set for December 4.

The petition recalls that the rule recognizing overproduction was adopted some time after the field was discovered, and that considerable overproduction was canceled. In order to equalize the recovery of wells, it is asked that present overproduction be cut off. The company also asked that a 100-bbl. minimum rule be established for the field.

Estimated Production

Estimated production by pools in Oklahoma for the week ending November 10 and for the preceding week follows:

	Barrels	
	Nov. 17	Nov. 10
Allen	7,650	7,650
Asher-West Asher	1,575	1,550
Burbank	9,100	9,100
South Burbank	11,750	10,250
Balance of Osage	24,000	25,000
Blackwell	4,750	4,800
Bristow-Slick	10,250	10,250
Crescent	3,850	2,925
Cromwell	4,400	4,400
Cushing-Shamrock	13,500	13,500
Chandler district	5,750	6,000
Duncan district	4,300	4,300
Fish	4,175	4,125
Fitts	2,225	2,050
Gray	2,000	1,475
Graham	3,600	3,600
Healdton	9,200	9,250
Hewitt	4,750	4,750
Holdenville	2,600	2,600
Keokuk	2,025	600
Konawa	2,025	2,050
Lucien	7,975	6,075
Marshall-Lovell	1,100	1,100
Oklahoma City	154,875	151,350
Papoose	1,250	1,250
Sholem-Alechem	4,100	4,100
Seminole Field:		
Bowlegs	11,525	9,600
Carr City	5,475	3,200
Earlsboro	9,325	8,275
East Earlsboro	9,450	8,075
South Earlsboro	1,025	875
Little River	14,350	12,300
East Little River	800	575
Maud	1,400	1,150
Mission	3,575	2,625
Seminole	10,250	9,450
East Seminole	1,325	1,175
Searight	2,775	3,200
Total Seminole	71,275	60,500
St. Louis-Pearson	21,900	19,750
Tatums	5,450	6,300
Tonkawa-Garber-Thomas	6,250	6,300
Wewoka	4,200	4,200
Yale-Jennings	4,750	4,750
Other pools	61,925	65,975
Total Oklahoma	478,525	458,950

In the southern part of Pontotoc County, Jack Lynch and Byron Sledge have an extension to the Fitts area in their No. 1-A Thompson, SW NE SW Section 1-1n-7e. It found Hunton lime at 3,831 feet and Sylvan shale at 4,109-10 feet, total depth. The swab brought up 97 bbls. of oil in three and one-half hours, lowering the fluid level to 300 feet off bottom. There was no water showing. The well will be either shot or acidized or both. The oil comes from Hunton lime. Eight and one-half inch casing was cemented at 3,815 feet.

On the west edge of the Fitts Pool, Fleetborn and others found salt water at 4,488 feet in their No. 1 Norris, NE NE SW Section 25-2n-6e, and the hole was being plugged back to 4,450 feet.

Magnolia Petroleum Co. has completed its No. 1 Dawes Harden, SW NW NE Section 30-2n-7e. It is good for 275 bbls. a day in its flush state.

In Coal County, where E. H. Moore and others are trying to open another Fitts Pool, their No. 1 Edwards, NW NE SE Section 27-2n-8, was at depth of 7,336 feet, 26 feet in Bromide. There was a stain of oil showing but the hole filled with water for 200 feet in about one hour. Operations were shut down and the test may be abandoned.

Osage County

Kewanee Oil & Gas Co.'s No. 1 Kennedy, SW SW SE Section 34-26-6, South Burbank Field, flowed 1,331 bbls. in 24 hours from Burbank sand at 2,763-2,818 feet and was completed.

Kewanee Oil & Gas Co.'s No. 1 McKinley, SW cor. Section 35-26-6, was completed. It flowed 2,685 bbls. from Burbank sand at 2,759-2,832 feet.

Carter Oil Co. and others' No. 2 Munza flowed 2,785 bbls. in 24 hours from Burbank sand at 2,760-2,835 feet, and was completed.

Mead Oil Co.'s No. 3, NW SW NE Section 22-24-8, was completed as a gas well good for 2,500,000 feet from Burgess sand at 2,308-70 feet. It sprayed about 40 bbls. of oil, but then quit and produced only gas.

Barnsdall Oil Co. completed No. 22, SW NE Section 30-21-9. It was shot in Buzzard sand at 308-24 and 336-65 feet and swabbed 65 bbls. initially.

Johnson Oil & Refining Co.'s No. 4, SE SW NW SE Section 30-21-9, was shot in Buzzard sand at 313-36 feet and made 75 bbls. initially and the crew was cleaning out.

New work in Osage County included Kewanee Oil & Gas Co.'s No. 3 Kennedy, SE NE SE Section 34-26-6, building rig; same company's No. 4 Kennedy, SE NW SE Section 34-26-6, cellar; same company's No. 2 McKinley, SW NW SW Section 35-26-6, cellar; Frakes & Kennedy's No. 6 Okesa Townsite, NE SW SE Section 20-26-11, machine; Skelly Oil Co.'s No. 8 Ducotey, NW NE SW Section 3-25-6, spudded; Sinclair Prairie Oil Co.'s No. 4, NW SW NE Section 21-25-6, rig on ground; Continental Oil Co. and Sinclair Prairie Oil Co.'s No. 8, C E half E half SE Section 5-23-9, location; Comail Oil Co.'s No. 5, SE NW SW Section 32-22-8, location; Gillespie & Grimes' No. 6, SE SE SW Section 31-21-12, rigged up to deepen from 2,073 feet.

Grant County

The Sultan Oil Corp.'s No. 1 Patton, SW SW SE Section 19-29-3w, Grant County, a wildcat, was abandoned at 4,971 feet. It penetrated dolomite at 4,952-71 feet. The drill found Oswego lime, chat, Mississippi lime, Chattanooga shale, Misener, Viola, Wilcox sand, Green shale and dolomite, but no oil or gas.

Kay County

Wentz Oil Corp.'s No. 3 West Herman, NE SW NW Section 8-28-1, Kay County, was drilling at 470 feet.

Pawnee County

Robinson Drilling Co. was drilling at 669 feet in No. 1 Cockrell, SE SE NW Section 28-23-4, Pawnee County.

Murray Ringold's No. 5 Turkey Island, NW SW NE Section 25-21-8, was shot with 130 quarts in Layton sand at 1,105-45 feet, and flowed 150 bbls. the first 24 hours. Same operator spudded No. 6 Turkey Island, NE SE SW Section 30-21-9.

Noble County

Four wells were completed in the Polo Pool as follows:

Stanolind Oil & Gas Co.'s No. 1 DeVore, SW SW NW Section 27-22-2w, 2,180 bbls. initially from Wilcox sand at 4,897-4,902 feet, total depth.

Stanolind Oil & Gas Co. and others' No. 1 DeBord, NW NW SW Section 27-22-2w, 1,223 bbls. initially from dolomite and Wilcox sand at 4,828-35 feet, 4,836 feet, 4,858-62 feet and 4,885-90 feet.

Sinclair Prairie Oil Co.'s No. 2 Smith, SE SE NE Section 28-22-2w, made 1,920 bbls. initially from Wilcox sand at 4,837-4,900 feet.

Stanolind Oil & Gas Co. and others' No. 4 Voss, NE NE SE Section 28-22-2w, 2,145 bbls. initially from dolomite at 4,782-87 feet and Wilcox sand at 4,805-80 feet. Same operators' No. 3 Voss, not yet completed, flowed 1,342 bbls. from dolomite at 4,825-28 feet and Wilcox at 4,847-69 feet.

New work in the pool included Stanolind Oil & Gas Co.'s No. 2 DeVore, NW SW NW Section 27-22-2w, a rig; Stanolind Oil & Gas Co. and others' No. 2 DeBord, NW NW SW Section 27-22-2w, cellar dug.

In the Lucien Pool, Shell Petroleum Corp. and others' No. 1 R. Hay, C SW NE Section 17-20-2w, found Wilcox sand at 5,149 feet, first oil at 5,200 feet, and was bottomed at 5,206 feet. The well flowed 305 bbls. the first 15 hours by heads with 1,000,000 feet of gas.

Creek County

Completions in Creek County included the following wells:

W. C. McBride, Inc.'s No. 29 Starr, NE SE SE NE Section 17-18-7, in the Cushing Pool, deepened from 2,492 to 2,520 feet, in Bartlesville sand, was acidized and produced 125 bbls. of oil and 30 bbls. of water.

Tide Water Oil Co. and others' No. 3 Jackson, SE NE SE Section 3-17-7, Cushing Field, deepened from Bartlesville sand at 2,400 feet to Simpson at 2,495-2,515 feet, pumped 38 bbls. in 24 hours.

C. W. Titus' No. 3 Casey-B, SW NE SW Section 3-17-8, in the Olive district, was shot in Layton sand at 1,304-41 feet and started at 450 bbls. a day and 750,000 feet of gas.

Bay State Oil Co.'s No. 2 B. T. Harmon, SE NE NE Section 9-17-8, was a 200-bbl. initial producer from Layton sand at 1,380-1,405 feet, which had been shot.

Murta & Sherry and others' No. 5 Cruel, SE SW NE Section 36-17-11, in

Wildcat Operations in Oklahoma

Week Ending November 17

NORTHERN OKLAHOMA

ALFALFA COUNTY

Acre et al's No. 1 Acre, C SW NE Sec. 14-24-11w.
T.D. 6,460 ft.; lost tools and S.D.

BECKHAM COUNTY

Fred Coogan et al's No. 1 Shelton, SW cor. Sec. 33-10-25w.
Rigged up and S.D.

CADDO COUNTY

H. W. Lee et al's No. 1 Stacey Ferrell, SW NE NE Sec. 3-16-13w; (2,000-ft. test). 12-in. csg. froze at 757 ft.; will run 10-in. csg.

Denver Prod. & Ref. Co.'s No. 1 Noe, NW SW SW Sec. 34-10-10w.
T.D. 11,230 ft.; fishing for drill pipe.

CLEVELAND COUNTY

Mid-Continent Pet. Corp. et al's No. 1 Collett, C E½ NE SW Sec. 35-10-1w.
T.D. 6,443 ft.; fishing job cmtd. off.

COAL COUNTY

Moore & Deaner's No. 1 Edward, NW NE SE Sec. 27-2-8.
Oil Creek sand 7,315 ft.

J. D. Petty Oil Co.'s No. 1 McMillan, SW NW NE Sec. 16-1s-8.
Sandy shale at 1,000-34 ft.; S.D.

GARFIELD COUNTY

Ross Cummings et al's No. 1 Gage, SE NW Sec. 27-22-3w.
Spudded and S.D.

GARVIN COUNTY

William H. Atkinson et al's No. 1 Pharoah, NW cor. Sec. 15-3-2w.
Top Wilcox 6,190 ft.; T.D. 6,216 ft.; dry and abd.

National Prod. Co.'s No. 1 Littrell, NE cor. Sec. 31-2n-3w.
T.D. 830 ft.; reaming hole.

GRANT COUNTY

Helmerich & Payne's No. 1 Crouse, C NE SW Sec. 29-25-3w.
Skidded rig 60 ft. N; spudded.

Sultan Oil Corp.'s No. 1 Patton, SW SE Sec. 19-29-3w.
Cored sandy dolomite 4,966-71 ft.; salty; dry and abd.

HARPER COUNTY

Sinclair Prairie Oil Co.'s No. 1 Neff, NW SE Sec. 21-26-24w.
Top of Mississippi lime 7,030 ft.; T.D. 7,378 ft.; will test with seismograph.

HUGHES COUNTY

Evans & Morris' No. 1 Day, NW NW SW Sec. 30-6-10 (700-ft. test).
Drlg. 500 ft.

Freeman et al's No. 1 Kite, NW NW NE Sec. 5-6-10.
Machine.

Turner et al's No. 1 Williams, SW cor. Sec. 35-7-10.
Rig.

KAY COUNTY

Bay Oil Co.'s No. 1 Holden, SW SW SE Sec. 14-28-2.
Drlg. 1,125 ft.

Carter Oil Co.'s No. 1 Fowler, C NE Sec. 12-27-1e.
Drlg. 930 ft.

S. R. McCorkle et al's No. 1 Smith, SW cor. Sec. 6-26-4.
Moving in material.

KINGFISHER COUNTY

Jadeka Dev. Co.'s No. 1 Frakes, C SW NE SW Sec. 16-15-6w.
T.D. 7,612 ft.; drill pipe pulled; S.D.

LEFLORE COUNTY

East Okla. O. & G. Co.'s No. 1 Metcalf, SW cor. Sec. 2-4-26.
T.D. 2,040 ft.; hole caved; S.D.

Murdock et al's No. 1 fee, SW NE SW Sec. 15-5-25e.
T.D. 2,425 ft.; S.D.

LINCOLN COUNTY

Tom Bennett et al's No. 1 Bolby, C SE SW Sec. 27-13-2.
Cored 5,065-81 ft.; S.D. for. csg.

R. L. Kemp and Comail Oil Co.'s No. 1 Dooley, NE SW Sec. 20-17-6.
Drlg. 1,270 ft.

Derrickson and Reserve Pet. Co.'s No. 1 Law, SE SW NE Sec. 25-14-3.
Rig on ground.

M. Murray and Ralph Day's No. 1 Rittenhouse, NW NW NE Sec. 26-14-6.
Wilcox 4,280-85 ft.; and 4,298-4,302 ft.; will P.B. to 4,285 ft. and test.

Sinclair Prairie Oil Co.'s No. 1 Hoyt, NW SW NE Sec. 5-14-3.
Drlg. 3,400 ft.

Sinclair Prairie Oil Co.'s No. 1 Boland, SW cor. Sec. 25-12-3.
D.D.; cored 5,476-79 ft.; swbd. 32 bbls. oil, 47 bbls. wtr.

LOGAN COUNTY

W. N. Anthony's No. 1 Fruin, SE SW Sec. 4-16-1.
Wilcox 5,265-85 ft.; P.B. to 5,181 ft.; will shoot Misener sand.

Gypsy Oil Co. and Sinclair Prairie O. & G. Co.'s No. 1 Manning, C NW NW Sec. 3-17-4w.
T.D. 6,411 ft.; will test Layton sand.

Helmerich-Payne et al's No. 1 Sturgis, SE NW.
Spudding.

(Continued on Next Page)

the old Glenn Pool territory, started at 75 bbls. a day from Wilcox sand at 2,651-60 feet.

A well not yet completed was Atlantic Oil Producing Co. and Sinclair Prairie Oil Co. and Texas Co.'s No. 2 Harjo, C NW NE SE Section 27-14-10, in the Tuskegee area, which flowed 125 bbls. from Misener sand at 3,250-55 feet. It was to be given a shot.

New work in Creek County included Big Four Petroleum Co.'s No. 1 Hope, NW SW SW Section 35-19-8, drilling at 225 feet; C. R. Fortner's No. 3 Eufala, NE NW NE NW Section 5-18-11, fishing, total depth 200 feet; Baker & Lynch and Etting's No. 2 Brown, NW SW NW Section 4-18-12, total depth 1,740 feet, shut down; Bay State Oil Co.'s No. 3 Lasley, SW SE NW Section 3-17-8, rigged up; J. E. Crosbie's No. 7 Casey, SE NW SE Section 3-17-8, rig; Magnolia Petroleum Co.'s No. 9 Street, NW SW NE Section 3-17-8, rigged up; C. W. Titus' No. 4 Casey, NW NE SW Section 3-17-8, rigged up; Slyman and others' No. 1 Hendrickson, SW NW NW Section 4-17-8, deepening from 1,420 feet, underreaming the 5-inch casing; C. L. Jordan's No. 3 Bishop, NW SW SW Section 13-17-8, deepening from 2,250 feet, rigged up; Culbertson & Williams' No. 2-A Brown, CSL NE SE Section 10-16-10, rigged up; Turner Brothers' No. 2 Berryhill, SE SE NE Section 1-16-11, spudded and shut down; S. W. Anthony's No. 1-B Vowell, NW SW NW Section 4-16-12, drilling at 150 feet.

Logan County

Gypsy Oil Co. completed No. 1 Hanewinckel, C NW NW Section 27-17-4w, in Wilcox sand at 6,369-74 feet. It swabbed 186 bbls. of oil and 100 bbls. of water in 24 hours.

Eason Oil Co.'s No. 2 Katscher No. 1, C NW NE SW Section 34-17-4w, was acidized with 1,000 gallons of acid and a load of 380 bbls. of oil in Wilcox sand at 6,291-6,324 feet and flowed 265 bbls. the first 10 hours.

Lincoln County

Charles Balph and others' No. 1 Young, C N half NW NW Section 23-15-5, Lincoln County, building rig.

M. Murry and Ralph Day's wildcat test, No. 1 Rittenhouse, NW NW NE Section 26-14-6, drilled to Wilcox sand at 4,280-85 feet, where it found black oil, and to second Wilcox at 4,298-4,302 feet which sand showed water. The owners will plug back to 4,285 feet and test the upper Wilcox.

Sinclair Prairie Oil Co.'s No. 1 Boland, SW cor. Section 25-12-3, which started off at 440 bbls. from Wilcox sand at 5,455-61 feet, in February of this year, is deepening, coring as it has gone down, the last core having been made at 5,476-79 feet. The well was put on the swab and made 32 bbls. of oil and 47 bbls. of water.

Derrick & Haddock's No. 1 Henning, NW NE NE Section 14-15-6, was a hole full of water in Wilcox sand at 4,053-82 feet and was abandoned.

Okmulgee and Muskogee Counties

McKay and others' No. 4 Asbury, SE cor. NW Section 31-16-15, Muskogee County, found only water in Wilcox sand at 1,769-70 feet and it was abandoned.

Stekoll & Vierson's No. 27 Osborne, CNL SW SW SE Section 21-15-14, Okmulgee County, was completed a 10-bbl. well at 1,684-1,710 feet.

Burke Greis Oil Co. and others' No. 1 Jackson, NE NW NW Section 8-13-11, in the Tiger Flats area, Okmulgee County, was a hole full of water from Viola lime at 3,325-40 feet and was abandoned.

Penrod and others completed a 10-bbl. well in No. 2-A Fox, CEL SE NW Section 22-13-14, in Siliceous lime at 2,760-70 feet. It had been deepened from 2,477 feet.

In McIntosh County, Harmon Brothers' No. 2 Smith, NE SE NE Section 21-12-14, was completed as a gas well. It started at 750,000 feet per day at 750-76 feet.

New work in Okmulgee County included Moffett & Stekoll's No. 7 Hawkins, in Section 6-11-12, deepening from 1,270 feet, rigged up; Harmon Brothers' No. 1 Seago, SE NE NW Section 10-12-14 (McIntosh County), machine in; Colton and Barnsdall Oil Co.'s No. 1-A Berryhill, SE SW SW Section 10-12-12, cellar.

Oklahoma County

J. C. Shaffer and others have cellar dug and rig corners constructed for a wildcat test, No. 1 Bullard, SW cor. Section 13-13-2w, Oklahoma County.

Anderson & Kerr's No. 1 Earps, 903 feet south and 213 feet west of SE cor. Section 22-11-3w, had been drilled to 6,530 feet and cleaned out to 6,552 feet and the hole filled with water. School Land sand was penetrated at 6,530-70 feet.

Greater Seminole Area

Anderson & Kerr and others abandoned a wildcat, No. 1 Baumgartner, NW NW SW Section 7-10-8, Seminole County, in Cromwell sand at 3,573-87 feet, total depth, which was dry.

Atlantic Oil Producing Co. and Sinclair Prairie Oil Co.'s No. 4 Foreman-C, C SE NW Section 18-9-5, Earlsboro area, a 50-bbl. well in Hunton lime at 4,131-61 feet. It also showed a 1,000,000-foot gas production.

W. D. Grisso and others' No. 1-A Kenyon, C NE SE Section 3-8-4, Pottawatomie County, pumped 820 bbls. of oil from Hunton lime at 4,050-67 feet, which had been acidized.

Turman Oil Co. completed No. 1 Hubbard, SW SW NW Section 29-8-4, in Hunton lime at 4,367-87 feet. It swabbed and flowed 628 bbls. of oil. It was not acidized.

Barnett Plan, trustee's No. 1-A Harris, SW NW SE Section 36-8-7, is a 12-bbl. pumper completed in Gilcrease sand topped at 3,114 feet, total depth 3,200 feet in shale.

Elbar Oil Co. and others completed No. 3 Wyatt, NE NE NW Section 10-7-4, in the South St. Louis area. It was given a small shot in Earlsboro sand at 3,466-85 feet and swabbed 1,340 bbls. in 48 hours.

Phillips Petroleum Co.'s No. 2 Curly, SW SE NW Section 22-7-4, an old well deepened from 3,645 feet to dolomite at 4,173-4,215 feet, where it was acidized and later produced 1,208 bbls. of oil and 1,747 bbls. of water in 24 hours, was completed.

Four wells were completed in Township 7-8, on the Seminole-Hughes border: Mid-Continent Petroleum Corp.'s No. 11 Factor, NW NW SE Section 15, a 5-bbl. well at 1,175-96 feet; Mainard and others' No. 7 Moore, SE NW NE Section 22-7-8, a 10-bbl. pumper at 1,176-1,214 feet; Burke-Greis Oil Co.'s No. 1 Yekcha, in SW SW NW Section 29, which started at 600 bbls. a day from Wapanucka lime at 2,970-3,005 feet, and Slick-Urschel, Inc.'s No. 2 Reed, SW NE SE Section 31, which flowed 2,250 bbls. in 24 hours from Wilcox sand at 4,211-17 feet.

Bishop Oil Co.'s No. 1 Zoller, CEL NE NW NE Section 6-6-5, Pottawatomie County, is a 720-bbl. completion from Wilcox sand at 4,192-98 feet.

Mudge Oil Co. completed No. 1-A Heard, SE SE NW Section 9-6-7. It swabbed 50 bbls. of oil and 40 bbls. of water and then pumped 15 bbls. of oil and 40 bbls. of water from sand at 1,935-36 feet.

New work in the Seminole region included Hall & Gentner's No. 1 Sasakwa Townsite, Block 2, NW SE NE Section 36-6-7, cellar; Winona Oil Co. and Jarvis & Holm's No. 3 Myers, NW SW NE Section 31-7-8, location; Manhattan Petroleum Co.'s No. 2 Littleton, SE SW NW Section 20-9-5, location; Amerada Petroleum Corp. and others' No. 1 Jaynes, NW NW SW Section 20-10-10 (Hughes County), rig up for a Wilcox sand test; Phillips Petroleum Co.'s No. 1 Wendall, NW SW NE Section 8-10-4, a location; Phillips Petroleum Co.'s No. 1 Grove, SE NE SE Section 5-10-4, Pottawatomie County, a location; Kilpatrick and Moffett's No. 1 Durant, CNL NW NE Section 35-11-11, Okfuskee County, rigged up.

Pontotoc County

Stanolind Oil & Gas Co.'s No. 1 Walker, SE NE NW Section 21-5-5, is a 25-bbl. completion at a total depth of 2,675 feet. Viola lime was topped at 2,603 feet. This well had been drilled to Wilcox sand at 2,965-81 feet, where sulphur water showed up, and was plugged back.

Brydia Oil Co. abandoned No. 1-A Haynes, SE NE SW Section 32-5-5, at 2,958 feet. It was shot in Hunton lime topped at 2,437 feet, with no results.

H. & M. Drilling Co. completed No. 4-B Busby, SE SW SE Section 20-5-8, in Allen sand at 885-923 feet. It made a 16-bbl. initial production.

Crabtree & Kemp completed No. 1 Gilmore, SE SW NE Section 22-5-8, at 848-68 feet and have a 70-bbl. initial producer.

Blackstock Oil Co.'s No. 3 Hardin-D, SW SE NW Section 30-2-7, in the Fitts Pool, flowed 1,982 bbls. in six and one-half hours through casing and tubing from Bromide at 4,160-90 feet and 4,245-85 feet, and was completed.

Deep Rock Oil Co. completed its No. 1-D Martin, CSL NW SE NE Section 30-2-7. It flowed 2,565 bbls. of oil in 5 hours and 15 minutes, through casing for three hours and tubing 2 hours and 15 minutes, the oil coming from pay at 4,100-60 and 4,214-41 feet, and was completed.

Southern Fields

T. T. Beeler's No. 1 Wolfe, NE NW SE SW Section 5-5s-5e, Marshall County, was dry and abandoned at 559 feet.

Charles Newsome was drilling at 468 feet in No. 2 fee, NW NE SE Section 36-7s-5e. Central Oil Co. was moving in spudder to start No. 2 Minter, SW cor. Section 30-7s-6e.

Hankin & Williams were drilling at 400 feet in No. 1 Slagg, SE SW NE Section 20-6s-13, Bryan County.

Farlyn Oil Co. was drilling at 85 feet

(Continued on Page 91)

Wildcat Operations in Oklahoma

(Continued from Preceding Page)

Sinclair Prairie Oil Co. et al's No. 1 Dunbar, Sec. 25-15-4w.
Drlg. 2,810 ft.
Sinclair Prairie Oil Co. et al's No. 1 School Land, SE cor. Sec. 36-17-1w.
Drlg. 50 ft.

NOBLE COUNTY

Marathon Oil Co.'s No. 1 Gilbert, NE cor. Sec. 24-22-2.
Rigging up rotary.

OKFUSKEE COUNTY

Delton Oil Co.'s No. 1-A Fixico, SE cor. Sec. 7-11-8.
Drlg. 2,100 ft.

OKLAHOMA COUNTY

R. Carl Larkin's No. 1 Brobine, NW NW NE Sec. 33-13-3w.
Digging cellar.
J. C. Shaffer et al's No. 1 Bullard, SW cor. Sec. 13-13-2w (Wilcox test).
Cellar and rig corners.
Springrose Drlg. Co.'s No. 1 Edwards, C SE Sec. 19-11-1.
T.D. 6,540 ft.; 400 ft. drill pipe in hole; S.D.

OSAGE COUNTY

Peters Pet. Co. and Norbia Oil Co.'s No. 1, SW cor. Sec. 15-25-5.
H.F.W. 2,040 ft.

PITTSBURG COUNTY

McAllister Pet. Co. et al's No. 1 Chunn, SE NW Sec. 29-4-14.
Bad hole; skidded rig 400 ft. SE.
P. H. Gray et al's No. 1 Lee, NW SE Sec. 12-5-13.
S.D. 160 ft.
W. E. Halley's No. 1 Drew, NW SW Sec. 21-3-14.
S.D. 190 ft.

PONTOTOC COUNTY

Charles E. Carter et al's No. 1 Wood, NW SW SE Sec. 5-4-3.
Spudded and S.D.
E. M. Blanchard's No. 1 Crabtree, NE SE NE Sec. 27-2-6.
S.D. 2,920 ft.
Boyle et al's No. 1 Newbern, SW NE Sec. 31-5-4.
P.B. to 2,080 ft. and shot; H.F.W.; S.D.
Dandridge et al's No. 1 Stafford, NW cor. Sec. 5-1-6e.
T.D. 740 ft.; S.D.
Dixie Oil Co., Inc.'s No. 1 Graham, SW SE SW Sec. 13-1-7.
Rig.
Gillette & Kroeger's No. 1 Robbins, NE SE Sec. 31-1-4.
T.D. 760 ft.; S.D.
Gillette & Kroeger's No. 1 Duver, NW SE Sec. 36-1n-6e.
T.D. 784 ft.; reaming hole.
J. D. Sledge and Jack Lynch's No. 1-A (twin) Thompson, SW NE SW Sec. 1-1n-7e.
Hunton lime 3,830-48 ft.; increase in oil 4,098-4,105 ft.; Sylvan 4,110 ft.; 3,100 ft. oil in hole; S.D.
Southern Oil Corp.'s No. 1 Ladd, C NW NW Sec. 27-2-7.
S.D. 525 ft.

POTTAWATOMIE COUNTY

Blackgold Pet. Co.'s No. 1 Bizzell, C NE NW Sec. 15-7-3.
Drlg. 2,960 ft.
Moran et al's No. 1 Brinlee, SW SW SE Sec. 27-6-5.
Shot with 50 qts. at 2,663-2,700 ft.; C.O.
W. D. Grisso et al's No. 1-A Kenyon, C NE SE Sec. 3-8-4.
Hunton 4,050-67 ft.; acidized; 820 bbls. in 24 hrs.; comp.

SEMINOLE COUNTY

Anderson & Kerr et al's No. 1 Baumgartner, NW NW SW Sec. 7-10-8.
Cromwell sand 3,573-87 ft.; dry and abd.
Harris and Haun's No. 1 Harjo, NE SE NW Sec. 11-6-6 (O.W.P.B.).
P.B. to 2,115 ft.; H.F.W.; S.D.
Mudge Oil Co.'s No. 1 Whitney, SE NW Sec. 9-6-7.
Sand 1,935-36 ft.; pumped 15 bbls. oil, 40 bbls. wtr.; comp.
Verser & Clay et al's No. 1 Thomas, NE SE NW Sec. 1-4-6.
T.D. 2,100 ft.; rigging up standard tools.

TEXAS COUNTY (PANHANDLE)

Ben F. Ash et al's No. 1 Guymon Townsite, C NE SE Sec. 30-3n-15e (Cimarron Meridian).
Drlg. 2,175 ft.

WASHITA COUNTY

Anadarko Basin Oil Co.'s No. 1 Wolf, NE SW Sec. 23-9-17w.
Rigged up and S.D.
Okla.-Midwestern Oil Co.'s No. 1 Dock, SW cor. Sec. 21-8-18w.
T.D. 2,430 ft.; lost tools in hole; rig rebuilt; S.D.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Brookshire et al's No. 1 Rowland, NW NE NE Sec. 18-3s-10e.
T.D. 3,709 ft.; will run 5 3/16-in. csg.
J. D. Boukan's No. 1 Howard, NW SW NW Sec. 20-2s-10e.
S.D. 1,135 ft.; machine moved out.
L. A. Fitts' No. 1 Blankenship, NE cor. NW Sec. 19-3s-10e.
T.D. 651 ft.; S.D.
T. C. Ramler et al's No. 1 Roberts, SW SE SW Sec. 6-2s-12e.
S.D. 1,175 ft.

BRYAN COUNTY

Hankin & Williams' No. 1 Slagg, SE SW SE Sec. 20-6s-13e.
Drlg. 400 ft.

CARTER COUNTY

Daphfine Oil Co.'s No. 1 Hooks, SE NW NW SE Sec. 5-1s-2w.
T.D. 3,281 ft.; P.B. to 2,150 ft.

CHOCTAW COUNTY

J. V. Scrivener et al's No. 1 Swink, C NE SE Sec. 29-6s-20e.
S.D. 810 ft.

COMANCHE COUNTY

F. F. Stevens' No. 1 Green, SE SW Sec. 2-1-13w.
T.D. 1,210 ft.; fishing.
Heiden & Taylor's No. 2 Crutcher, C NE Sec. 11-1n-12w.
T.D. 862 ft.

JACKSON COUNTY

Burk Royalty Co.'s No. 1 Gore, SE NW SE Sec. 3-1s-20w.
S.D. for wtr. at 1,600 ft.
Gypsy Oil Co.'s No. 1 Stokes, SE NW SW Sec. 11-1-20w.
Lime 1,709-11 ft.; T.D. 1,723 ft.; S.D.
Gypsy Oil Co.'s No. 1-A (Twin) Kelly, NE cor. Sec. 10-1n-20w.
Shot with 10 qts. at 1,150-70 ft.; 300,000 ft. gas; 140 lbs. pressure; T.D. 1,700 ft.; P.B. to 1,424 ft.
Gypsy Oil Co.'s No. 1-B Kelly (twin), 330 ft. S and 330 ft. W, SE cor. Sec. 10-1n-20w.
Oil sand at 1,170-80 ft.; 5-bbl. oil showing; drlg. 1,221 ft.
Ben Russell et al's No. 1 Unknown, NW SE Sec. 30-1-22w.
Drlg. 4,396 ft.

JEFFERSON COUNTY

Geo. Pace et al's No. 1 Jack, NE NW NW Sec. 10-4s-4w.
Drlg. 2,963 ft.
H. F. Young et al's No. 1 Boulden, SE SW SW Sec. 1-7-4w.
Rotary tools in.

JOHNSTON COUNTY

Glied Oil Co. et al's No. 1 Ferguson, SW SE NE Sec. 26-2s-8.
Drlg. 2,242 ft. in Viola.

MARSHALL COUNTY

Paul Robb's No. 1 Vittetoe, C NE SE Sec. 11-5s-4e.
T.D. 4,937 ft.; C.O.

MURRAY COUNTY

T. E. Revell et al's No. 1 Wolfe, NE cor. Sec. 18-1-2.
Sand 2,655-70 ft.; show of oil; T.D. 2,710 ft.; S.D.
C. P. Williams et al's No. 1 Singleterry, SE SW NW Sec. 25-2s-3e.
Drlg. 580 ft.

STEPHENS COUNTY

Wm. Angle's No. 1 Johnson, NE cor. SE Sec. 17-1n-8w.
Sand 2,225-30 ft.; showing oil and gas; hole bridged at 2,150 ft.
Carter Oil Co.'s No. 1 McCasland, C NW NW SW Sec. 22-1s-4w.
T.D. 5,317 ft.; in shale; tested 50 bbls. in 24 hrs.
Dixie Oil Co., Inc.'s No. 1 Graham, SW SE SW Sec. 13-1n-7w.
Rig.
J. W. Madison's No. 1 Tussey, SW SE NW Sec. 24-1n-4w.
Rig down, drill pipe in hole; S.D. 3,320 ft.

Drilling in California Fields Ahead of Last Year; Outlook Good for Continued Stabilization

By L. P. STOCKMAN
Staff Correspondent, California Fields

LOS ANGELES, Calif., Nov. 19.—Producers, refiners and marketers in California are entering the winter with more optimism than in a decade due to the prospect of maintaining present stabilized conditions. The improvement which has taken place during the current year is especially noticeable in the stabilization of crude and refined oil prices, closer adherence to curtailment and a substantial increase in both wildcat exploration and development work in proven fields.

This year will be the best experienced by field men since 1930. California operators finished more new wells in the first nine months of 1934 than during any calendar year since 1930 and it is not improbable the total initial daily production of new wells for the entire year may exceed or closely approximate the aggregate for any year with the exception of 1923, 1928 and 1929 when simultaneous, progressive development of town lot areas in the Long Beach, Santa Fe Springs and Huntington Beach Fields resulted in the completion of numerous prolific wells which registered an abnormally large initial daily production.

Increased Drilling

During the first nine months of 1934, operators have finished 286 new wells in California compared with 248 wells during the entire 12 months of last year, 184 in 1932 and 246 in 1931. This is tangible evidence of the consistent uptrend in drilling operations and equipment manufacturers along with the oil industry view the future with equanimity and are quite sanguine over the prospect of improved conditions during the next several months. The 286 new wells finished during the first nine months showed an aggregate initial daily production of 413,414 bbls. and may approximate 600,000 bbls. for the entire year. This is comparable with 274,104 bbls. for 1933 and 156,823 bbls. in 1932. During 1931 and 1930, the aggregate initial daily production of new wells was 364,434 bbls. and 584,521 bbls., respectively. At the present rate, the aggregate initial daily production of new wells for 1934 will rank well up toward the top, being exceeded probably only by the banner years of 1923 and 1929 when the initial of new wells totaled 1,376,279 bbls. and 1,307,496 bbls., respectively. The results of the current year are far more satisfactory as the high initials of past years placed a severe strain on marketers who were obliged to absorb an abnormal quantity of crude which had been placed in storage.

New rigs erected and the number of wells actually drilling are also far in excess of corresponding figures for any year since 1930 and it is likely when complete data is compiled it will be found to be in excess of the annual total for any period since 1929. During the first nine months, California operators erected 437 new rigs compared with 354 during the entire year of 1933 and 219 during 1932 and 259 during 1931. The average number of drilling wells per month during the nine months has been 192, compared with an average of 124 in 1933, 108 in 1932 and 207 in 1931. Drilling operations during 1934 have not been concentrated in any particular area but cover a large expanse of territory.

Consistent Development

That the aggressive but consistent development program under way throughout the State is not having any deleterious effect on construction efforts to restrict production by curtailment is evidenced by the fact that at the present rate production in California during 1934 will be on about a par with 1933. This is a very assuring feature because it indicates operators can undertake additional drilling without disrupting the proration program.

The center of production has shifted since the first df 1933 but this transfer of activities has been beneficial because it has eliminated town lot development. Santa Barbara Mesa is about the only exception as drilling sites in this field comprise one or more lots but the absence of pipe line outlets and failure of these wells to hold up for any length of time mitigates against the development of substantial production. In addition to these dominating factors, the quality of crude oil produced up in the Mesa is not especially conducive to competitive bidding for contracts as the oil falls well within the fuel oil range.

Numerous Advantages

Organization of the Pacific Coast Petroleum Agency and subsequent stabilization of the price structure has proved advantageous to most constructive marketers since the end of June and this is being reflected in financial statements by both producers and refiners. Gasoline prices have shown several periodic fluctuations during the past several weeks due to expiration of the moratorium on pump outlets and the insistence of some resellers that they be permitted to retail gasoline 1 cent below the price posted by major marketers for third grade gasoline. This has caused considerable anxiety among marketers from time to time and may result in the formulation of some definite action.

Price cutting spread to such an extent in October the Pacific Coast Petroleum Agency was obliged to take drastic action and subsequently placed about 200 resellers on the black list because of their chronic persistence in cutting the price of gasoline. These resellers cannot be supplied with gasoline by any member of the agency until they conform with provisions of the agency agreement which provide that all gasoline of the same grade must be sold at the same price. Some of these resellers have put in a gasoline substitute which is being sold as "motor fuel" while others have placed a notice on the pump to the effect that this is "not gasoline." This practice is not general because primarily the remaining chiselers and tea kettle refiners operating outside the agency are unable to secure enough crude to meet the demand and secondarily because considerable difficulty is being experienced in disposing of their refinery residuum. The agitation for a special dispensation to resellers has become a rather serious problem, and for this reason has received careful consideration by directors of the agency but no solution has yet been reached.

Agency Ultimatum

During the latter part of October a general price cut appeared imminent in crude and refined oil due to flagrant price cutting in the gasoline market coincident with a substantial increase in the production of uncurtailed crude oil. The Pacific Coast Petroleum Agency took the bull by the horns and laid its cards face up on the table at a general conference and decided to undertake immediate corrective measures. Refiners operating outside the marketing agreement were given to understand they would find it harder to secure the necessary amount of crude oil and natural gasoline with which to operate. Each was assigned a definite allowance and a fair percentage of the refined market and guaranteed adequate supplies of crude and natural gasoline provided they would conform with the marketing agreement.

Plants operating outside the agency have found the going rather strenuous during the past month because the agency has exerted considerable pressure on resellers by withdrawing permissible deliveries of gasoline by agency members to any station that persisted in cutting prices and at the same time inducing crude oil producers to conform with curtailment if they wished to maintain existing prices. By pulling out standard grades of gasoline from offending stations the reseller was left in a rather embarrassing position as he had plenty of "motor fuel" but not gasoline. As a result of these round table conferences a number of operators agreed to refrain from selling crude oil to price cutters and an amicable agreement was made with most of the refiners who have been operating outside of the marketing agreement.

Agency Enlarged

Elm Oil Co., McOwen Refining Co., White Star Oil & Refining Co. and Mercury Refining Co. have signed the marketing agreement., which prohibits price cutting and the use of uncurtailed crude oil. Many of the resellers who were marketing "motor fuel" at cut rate prices are now confronted with the necessity of either being good or shut up shop due to the inadequate production of gasoline substitutes to meet the demand. Two companies have refused to become members of the agency and will continue to market a product designated as "motor fuel" at a price slightly below the prevailing market for gasoline. This group will require an additional quantity of natural gasoline to fortify the mixture to facilitate quick starting.

The agency is clamping down the lid in a determined effort to effect stabilization of prices so that both producers and refiners may be in a position to show a profit and service stations dispensing "motor fuel" or an unbranded product called "not a gasoline" will not be serviced by any member of the Pacific Coast Petroleum Agency. Early in November the agency cracked down on a member of the agency and secured a temporary injunction preventing the company from selling gasoline to dealers at less than the posted price. Practically every member of the agency joined in the petition which charged, among other things, that the company had evaded provisions of the code and the marketing agreement by paying for improvements to retailers' properties. The agency agreement provides that officers of the agency are empowered to institute action to force compliance with contractual obligations by "the remedies of injunction or specific performance granted by a court of equity."

Mountain View

The Texas Co. finished an excellent well in the Mountain View Field of Kern County this week when No. 3 Mateo Smith was brought in flowing 1,508 bbls. per day from 5,450 feet. This well, capable of considerably greater production, was finished with a 6⅝-inch liner carrying 93 feet of perforated and is substantially beaned down. An 8⅝-inch water string was landed and cemented at 5,380 feet and the well is flowing under a pressure of 510 pounds on the tubing. Standard Oil Co. finished one new well and recompleted another in this field. The latter was No. 1 Wible, returned to production flowing 475 bbls. of clean 30.1 gravity oil and 360,000 feet of gas per day from 5,526 feet. The new producer is No. 2 Nicholas, which, bottomed at 5,650 feet and finished with a 9-inch water string landed at 5,375 feet, was brought in flowing 710 bbls. or 27.1

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	November 4		October 28			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic:						
Fuel oil	75,892	10,842	315,295	45,042	11,061,371	2,488,151
Diesel and gas oil	76,233	10,890	.....	.....	1,174,531	1,200,559
Gasoline	75,025	10,718	320,726	45,818	6,747,152	9,535,121
Kerosene	.....	.....	20,349	2,907	893,666	826,259
Asphalt	.....	.....	.....	.....	70,019	13,179
Other finished oil	.....	.....	.....	.....	54,778	90,557
Other unfinished oil	.....	.....	.....	.....	.....	72,584
Foreign exports:						
Crude oil	241,095	34,442	260,630	37,233	6,781,922	6,222,650
Fuel oil	328,297	46,900	172,931	24,704	11,030,253	6,682,579
Diesel and gas oil	89,634	12,805	93,491	13,356	3,436,967	2,854,889
Gasoline	397,176	56,739	15,106	2,158	4,135,641	4,849,426
Kerosene	17,866	2,552	.....	.....	1,479,596	1,699,803
Other finished oil	.....	.....	.....	.....	37,955	12,086
Other unfinished oil	6,470	924	75,383	10,340	230,745	66,375
Coastwise-domestic:						
Crude oil	54,421	7,774	64,210	9,187	7,053,296	5,891,821
Fuel oil	262,717	29,102	95,339	13,620	8,140,476	8,861,540
Diesel and gas oil	12,607	1,801	16,095	2,299	616,471	930,262
Gasoline	334,030	54,861	313,713	44,816	11,321,676	10,818,696
Kerosene	7,426	1,061	6,207	887	137,963	162,180
Naphtha distillates	.....	.....	.....	.....	.....	27,651

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic:						
Fuel oil	.....	.....	.....	.....	110,650	.....
Diesel and gas oil	.....	.....	73,325	10,475	599,613	603,897
Gasoline	.....	.....	.....	.....	365,283	804,548
Kerosene	.....	.....	181	26	276,593	483,430
Lubricants	.....	.....	.....	.....	46,693	33,934
Foreign exports:						
Crude oil	.....	.....	.....	.....	1,601,165	1,618,886
Fuel oil	19,860	2,837	137,917	19,702	1,879,829	1,745,802
Diesel and gas oil	.....	.....	.....	.....	1,164,102	907,646
Gasoline	.....	.....	9,489	1,356	2,605,526	3,455,587
Kerosene	3,563	509	.....	.....	1,008,223	841,225
Lubricants	2,966	424	323	48	164,257	107,127
Other finished oil	.....	.....	.....	.....	2,760	3,745
Other unfinished oil	.....	.....	.....	.....	5,750	26,278
Coastwise-domestic:						
Fuel oil	110,191	15,742	182,981	26,140	4,685,734	3,194,202
Diesel and gas oil	.....	.....	.....	.....	119,036	189,323
Gasoline	148,323	20,475	153,782	21,969	4,710,148	3,569,077
Kerosene	.....	.....	4,992	713	32,434	98,185

gravity oil and 580,000 feet of gas per day.

Several new projects are scheduled at Mountain View within a week or so as nine wells are getting ready to spud or are being rigged up. Included are General Petroleum's Nos. 3 and 4 on the Brantley lease, Gilmore-Snyder Oil Co.'s No. 1 Mullaney, Hancock Oil Co.'s No. 2 Miller, Major Oil Co.'s No. 1 Fife, Ohio Oil Co.'s No. 1 Derby and Shell's No. 1 Porter and No. 1 Bahrenburg. Several potential producers are also expected to be finished during the week as Union Oil Co. has the pay in No. 2 Wible and Standard has topped the Santa Margarita in No. 2 Wible at 5,450 feet. These leases are in the same section. Standard also has No. 3 Ranton scheduled for immediate completion as the water shut-off on the 9-inch water string was approved a few days ago.

Edison

The Edison Field, a few miles east and a little north of Mountain View, has taken a new lease on life and preparations are under way to start a number of new projects. Shell has already started rig construction for two new wells and has location staked for another. A. T. Jergins, Monterey Exploration Co. and Texas Co. are also starting some new work. North American spudded No. 1 Ryan, which is slightly below 1,000 feet. Western Gulf completed another good producer in the Fruitvale Field when No. 3 Switzer was brought in under a natural flow doing 876 bbls. of unusually clean 20.9 gravity oil per day. This well was bottomed at 3,886 feet and finished with a 6⅝-inch liner, including 316 feet of perforated.

A week or so ago, Western Gulf completed No. 14-B on the K.C.L. lease flowing 1,405 bbls. per day. The company stepped up its drilling program in this field a month or so ago and has finished two new wells during the fortnight and has two more wells drilling. The company has been fighting for a larger allowable but, unable to convince the Central Committee it is entitled to a better break, has found it necessary to resume development work suspended more than a year ago. In addition to the drilling being done by Western Gulf, L. W. Harrison and Paroil Co. are working on one well each.

Lost Hills-Belridge

Associated Oil Co. has decided to make another bid for deep production on the Williamson lease in the Lost Hills Field of Kern County. The first test on this lease was drilled by Associated in conjunction with Richfield Oil Co. but so many high head water zones were encountered the company was unable ot develop commercial production. The forthcoming test will be watched with interest because this area justifies further work. Belridge Oil Co. should add a completion in the North Belridge Field of Kern County soon as its No. 16-35 in Section 35-27-20 is in the pay at 8,694 feet. This well is scheduled for completion in the Eocene and should register substantial production.

Shell has started rig construction for a test on several hundred acres leased in the Buena Vista Lake district earlier in the year. Ohio Oil Co. focussed the attention of operators on this section several months ago by completing what appears to be a commercial gas producer. The well was allowed to produce for several days to determine, as far as possible, whether it had penetrated a substantial accumulation of gas or had merely run into a gas pocket. Ohio's well, in the extreme eastern end of Buena Vista Lake, has not yet gone on commercial gas production but may fit into the picture before expiration of the winter season. Ohio is obliged to undertake further development work along about the first of the new year.

Devil's Den

The Devil's Den region is due for some more drilling as General Petroleum has erected a new rig on the Martin lease in Section 20-24-18 and Richfield Oil Co. is building rig for No. 2 Alferitz in Section 14-25-18. Richfield has a small producer on the Alferitz lease, but the Martin lease to be drilled by General Petroleum is virgin territory. Up in Blackwell's Corner, Amerada Petroleum Corp. is redrilling No. 1 Beer at 2,721 feet with the bottom of the hole at 2,723 feet. This well showed promise during drilling. The area is a strategic interval. In the Greenfield district, Sea Cliff Oil Co. is building rig preparatory to starting immediate work on a wildcat that has possibilities.

Elwood

Two new wells were finished in the Vaqueros formation in the Elwood Field of Santa Barbara County this week but neither showed what might be considered commercial production. Signal Oil & Gas Co.'s No. 3 on tideland permit No. 98 was completed flowing 841 bbls. of 34.1 gravity oil and 560,000 feet of gas per day but the fluid production is cutting 25 per cent water. This hole was bottomed at 3,784 feet and finished with a 5¾-inch liner carrying 225 feet of perforated. Pacific Western's No. 13 on tideland permit No. 92 was completed on a compressor doing 459 bbls. of 33.2 gravity oil cutting approximately 40 per cent. This well was finished at 3,545 feet and has a 6⅝-inch liner including 249 feet of perforated landed on bottom.

In the Rincon Field of Ventura County, Chanslor-Canfield Midway Oil Co. recompleted No. 5-C on the Hobson lease, which was returned to production pumping 131 bbls. of 28.2 gravity oil per day from 4,203 feet. Continental Oil Co. is having difficulty with No. 3 Grubb, an uncompleted project, in the San Miguelito Field of Ventura County and has found it necessary to plug back to 4,910 feet and begin redrilling the hole bottomed at 7,015 feet. Property Service Corp., which is drilling an outpost in the extreme eastern end of the Ventura Avenue Field, has backed up to 6,970 feet and will begin redrilling operations to straighten the hole.

Inglewood

Pacific Western Oil Co. has recompleted No. 16 Rubel in the Inglewood Field of Los Angeles Basin, which was returned to production flowing 2,460 bbls. of very clean 32.6 gravity oil and 400,000 feet of gas per day from 3,201 feet. Standard Oil Co. is working on two potential producers to be finished in the Rindge zone within three weeks. Texas Co. should also complete a new well in the deep zone as No. 1 Moynier, a former upper zone producer, is going at 2,890 feet. Associated Oil Co. is rigging up rotary equipment in No. 50 Vickers preparatory to carrying it down into the lower horizon.

The Dominguez Field yielded two new wells during the week but neither came up to expectations. Shell's No. 57 Reyes, bottomed at 5,408 feet but plugged back to 4,803 feet, was brought in flowing 254 bbls. of 27.3 gravity oil per day. Union's No. 53 Hellman, bottomed at 5,523 feet and finished with a 4¾-inch liner carrying 137 feet of perforated, was brought in on a compressor doing 193 bbls. of 30.4 gravity oil cutting about 30 per cent water. Union's No. 31 Hellman, a Miocene project finished at 7,393 feet, is being swabbed for a production test.

Potrero

Wilshire Oil Co.'s No. 2 Potrero, a deep test in the Potrero Field of Los Angeles Basin, has not responded to swabbing operations as quickly as anticipated but is showing 400 pounds pressure on the casing and may kick over at any minute. At last reports, the fluid level was around 3,500 feet. Bottom of the hole is 7,995 feet and the well was completed with 1,460 feet of 6⅝-inch liner carrying 1,120 feet of perforated. On a preliminary production test a few weeks ago, it showed evidence of water trouble but this was not conclusive.

In the Huntington Beach Field, West American Oil Co. completed No. 7 Huntington pumping 351 bbls. of 24 gravity oil per day after plugging back the hole from 4,368 feet to 4,304 feet. For the second consecutive week, operators in the Long Beach Field completed two wells. Bernal Oil Co. finished No. 2 Signal and Mines Oil Co. completed No. 2 Long Beach. The former well, bottomed at 5,075 feet and finished with a 5-inch liner carrying 730 feet of perforated, was brought in pumping 303 bbls. of 27.1 gravity oil per day. The new producer of Mines Oil Co. was completed pumping 297 bbls. of 27.2 gravity oil per day from 4,600 feet after the hole had been finished with a 4¾-inch liner including 476 feet of perforated.

Rosecrans

The Rosecrans Field of Los Angeles Basin will be back on the active list within a day or two as preparations are under way to begin drilling two wells. A. N. Macrate has taken over an aban-

(Continued on Page 83)

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
General Pet. Co., No. 11 Capitan, Santa Barbara Co.	32- 5-30	3,085	sd. sh. drlg.
Shell Oil Co., No. 2 Capitan, Santa Barbara Co.	32- 5-30	2,531	sd. sh. drlg.
Shell Oil Co., No. 3 Capitan, Santa Barbara Co.	5- 4-30	mtl.	bldg. rig
Royalty Serv. Corp., No. 1 Los Alamos, Santa Barbara Co.	35- 9-32	3,961	hd. sh. drlg.
Union Oil Co., No. 3 Santa Maria, Santa Barbara Co.	35-10-34	212	sd. drlg.
Signal Oil & Gas Co., No. 1 Elwood, Santa Barbara Co.	tideland	3,784	1,200 b.d.
Barnsdall-Rio Grande, No. 8 Doty Elwood, S. Barbara Co.	15- 4-29	5,742	redrlg. 2,000
East Elwood Pet. Co., No. 1 Elwood, Santa Barbara Co.	14- 4-29	3,656	suspended
Shell Oil Co., No. 1 Goleta, Santa Barbara Co.	20- 4-28	4,722	hd. sd. drlg.
Standard Oil Co., No. 2 Goleta, Santa Barbara Co.	17- 4-28	4,850	redrlg. 3,691
Ortega Oil Co., No. 1 Summerland, Santa Barbara Co.	16- 4-26	4,375	rd. sh. drlg.
Woodrow Pet., No. 1 Rincon, Ventura Co.	4- 3-24	7,612	suspended
General Pet. Co., No. 4 Rincon, Ventura Co.	tideland	....	bldg. pier
Continental, No. 3 San Miguelito, Ventura Co.	23- 3-24	7,015	redrlg.
Las Posas Pet., No. 1 Las Posas, Ventura Co.	22- 3-20	7,370	fishing
Fisher, Daniel, No. 1 South Mountain, Ventura Co.	5- 3-19	1,032	sd. sh. drlg.
Texas Co., No. 128 South Mountain, Ventura Co.	4- 3-19	4,500	rd. sh. drlg.
Oil Ridge Oil Co., No. 1 Fillmore, Ventura Co.	1- 4-19	1,380	will test
Bolsa Chica Oil Co., No. 2 Piru, Ventura Co.	4- 4-18	614	cleaning out
Piru Oil Co., No. 1 Piru, Ventura Co.	14- 4-18	2,485	hd. sh. drlg.
American Drilling Co., No. 1 Simi, Ventura Co.	6- 2-17	903	suspended
Dawson Oil Co., No. 1 Simi, Ventura Co.	5- 2-17	1,795	fishing
Rancho Oil, Inc., No. 1 Ojai, Ventura Co.	18- 4-23	2,481	hd. sd. drlg.
Continental Oil Co., No. 1 Ojai, Ventura Co.	12- 4-22	936	sd. sh. drlg.
Prop. Service Corp., No. 1 Lloyd, Ventura Co.	24- 3-23	7,194	O.S. drlg.
Mosher, J. W., No. 1 Santa Paula, Ventura Co.	22- 4-21	2,300	reaming
Associated, No. 2 Lost Hills, Kern Co.	2-26-20	....	location
Casa Mira Oil Co., No. 1 Belridge, Kern Co.	29-28-20	6,501	hd. sh. drlg.
General Pet., No. 1 South Belridge, Kern Co.	30-28-21	11,377	suspended
Union Oil Co., No. 18 North Belridge, Kern Co.	36-27-20	8,523	fishing D.P.
Standard Oil Co., No. 1-A North Belridge, Kern Co.	36-27-20	3,806	sd. sh. drlg.
Amerada Pet., No. 1 Blackwells Corner, Kern Co.	17-26-19	2,723	cleaning out
Home Corp., No. 1 McFarland, Kern Co.	16-26-27	2,102	suspended
Ohio Oil Co., No. 1 McVan, Kern Co.	22-22-27	1,364	cleaning out
Pell Oil Co., No. 1 McVan, Kern Co.	14-27-27	1,230	sd. sh. drlg.
Buckeye Union Oil Co., No. 1 McVan, Kern Co.	11-27-27	1,169	cmtd.
Hancock Oil Co., No. 1 Mountain View, Kern Co.	14-30-28	4,386	sd. sh. drlg.
Associated Oil Co., No. 1 Mountain View, Kern Co.	3-31-29	3,192	sd. sh. drlg.
Associated Oil Co., No. 2 Mountain View, Kern Co.	14-30-28	3,091	sd. sh. drlg.
Union Oil Co., No. 3 Mountain View, Kern Co.	23-30-28	5,561	sd. sh. drlg.
Union Oil Co., No. 4 Mountain View, Kern Co.	15-30-28	4,930	sd. sh. drlg.
Union Oil Co., No. 5 Mountain View, Kern Co.	15-30-28	....	location
Texas Co., No. 3 Mountain View, Kern Co.	14-30-27	5,450	1,500 b.d.
Barnsdall, No. 3 Mountain View, Kern Co.	31-30-29	5,000	sd. sh. drlg.
Hogan Pet., No. 6 Mountain View, Kern Co.	4-31-29	rig	suspended
Standard Oil Co., No. 3 Mountain View, Kern Co.	23-30-28	5,526	475 b.d.
National Oil Co., No. 1 Mountain View, Kern Co.	30-30-29	5,604	suspended
Gilmore-Snyder Oil Co., No. 2 Mountain View, Kern Co.	24-30-28	512	sd. drlg.
Gilco, Inc., No. 2 Edison, Kern Co.	22-30-29	2,113	cleaning out
Jergins Trust, No. 3 Edison, Kern Co.	14-30-29	360	sd. drilling
Jergins Trust, No. 4 Edison, Kern Co.	24-30-29	rig	suspended
Herndon Oil Co., No. 1 Edison, Kern Co.	17-30-29	rig	suspended
Shell Oil Co., No. 1 Edison, Kern Co.	16-30-29	4,276	350 b.d.
Monterey Expl. Co., No. 4 Edison, Kern Co.	15-30-29	rig	suspended
Texas Co., No. 1 Edison, Kern Co.	4-30-29	mtl.	bldg. rig
Centralia Oil Co., No. 2 Edison, Kern Co.	26-30-29	rig	suspended
North American, No. 1 Edison, Kern Co.	14-30-29	1,018	sd. sh. drlg
General Pet., No. 1 Edison, Kern Co.	14-30-29	1,940	sd. sh. drlg.
General Pet., No. 2 Edison, Kern Co.	15-30-29	rig	suspended
Lee Oil Co., No. 1 Edison, Kern Co.	6-30-29	4,025	cleaning out
Surety Oil Co., No. 1 Edison, Kern Co.	32-29-29	rig	rigging up
Sea Cliff Oil Co., No. 1 Greenfield, Kern Co.	7-31-28	rig	rigging up
Tejon Ridge Oil Co., No. 1 Comanche, Kern Co.	23-32-29	1,401	sd. sd. drlg.
Standard Oil Co., No. 1 Semi-Tropic, Kern Co.	8-27-22	515	sd. sh. drlg.
101 Oil Co., No. 1 Elk Hills, Kern Co.	5-30-24	606	sd. drlg.
Texas Co., No. 1 Temblor, Kern Co.	29-29-21	....	location
Shell Oil Co., No. 1 Buena Vista Lake, Kern Co.	9-32-25	....	location
Badger Oil Co., No. 1 Wheeler Ridge, Kern Co.	31-11-25	6,258	suspended
Russ Oil Synd., No. 1 Kingsburg, Fresno Co.	28-12-11	4,514	hd. sh. drlg.
Bergman, Harry, No. 1 Kingsburg, Fresno Co.	12-12-11	6,138	suspended
Union Oil Co., No. 1 Lillis-Kettleman, Fresno Co.	24-21-16	10,944	redrlg. 8,129
K.N.D.A., No. 56 Kettleman, Kings Co.	8-22-18	10,154	redrlg. 9,476
Texas Co., No. 1 Coalinga, Fresno Co.	35-20-14	1,032	sd. sh. drlg.
Western Gulf, No. 2 S. P., Fresno Co.	11-17-15	6,700	redrlg.
Farrell Pet., Well No. 1, San Luis Obispo Co.	18-31-12	1,263	hd. sh. drlg
Commonwealth Consd. Gas, No. 1 Tulare Lake, Kings Co.	21-22-20	2,490	gas—shut in
Commonwealth Consd. Gas, No. 2 Tulare Lake, Kings Co.	21-22-20	rig	suspended
Kettleman Pac. Oil Co., No. 1 Tulare Lake, Kings Co.	11-23-16	812	sd. sh. drlg.
Trico Oil & Gas Co., No. 1 Alpaugh, Kings Co.	33-24-22	3,712	abandoned
Trico Oil & Gas Co.'s No. 2 Alpaugh, Kings Co.	3-25-23	2,480	cleaning out
Buttes Oilfields Co., No. 2 Marysville, Sutter Co.	35-16-1	5,615	hd. sh. drlg.
Milham Exploration Co., No. 3 Tracy, San Joaquin Co.	24- 3-4	3,501	sd. sh. drlg.
Pure Oil Co., No. 1 Chowchilla, Madera Co.	7-10-14	8,220	showing gas
Northern Counties Pet., No. 1 Tehama, Tehama Co.	25-24-3	1,891	hd. sh. drlg.
Texas Co., No. 1 Petrolia, Humboldt Co.	1- 3-2	....	material

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Clayton, G. L., No. 1 Cerritos, Los Angeles Co.	31- 3-12	6,698	suspended
Kelly & Son., No. 1 Torrance, Los Angeles Co.	7- 4-13	6,692	sd. sh. drlg.
Houser, G. W., No. 1 Athens, Los Angeles Co.	18- 3-14	4,037	cleaning out
Wilshire Oil Co., No. 2 Potrero Deep, Los Angeles Co.	27- 2-14	7,985	swabbing
Fourl, C. W., No. 1 Del Rey, Los Angeles Co.	27- 2-15	6,445	cmtd.
Big Ben Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	mtl.	bldg. rig
Staple Oil Co., No. 1 Manhattan, Los Angeles Co.	24- 3-15	4,660	redrlg. 3,288
Rex Anglin Dev. Co., No. 1 Los Nietos, Los Angeles Co.	29- 2-11	1,030	cleaning out
Standard Oil Co., No. 1 Montebello Deep, Los Angeles Co.	6- 2-11	8,321	plug back
Universal Consd., No. 4 Montebello Deep, Los Angeles Co.	6- 2-11	mtl.	bldg. rig
Shively, N. O., No. 1 Puente Hills, Los Angeles Co.	23- 2-10	rig	rigged up
Deep Rock Oil Co., No. 1 Puente Hills, Los Angeles Co.	23- 2-10	2,524	pump test
Pressel & Tull, No. 1 Puente Hills, Los Angeles Co.	30- 2-9	3,912	br. sh. drlg.
Bartstow Oil Co., No. 2 Saugus, Los Angeles Co.	35- 5-16	2,400	suspended
International Dev. Co., No. 1 Saugus, Los Angeles Co.	34- 5-16	3,350	fishing
Black Eagle Oil Co., No. 1 Huntington, Orange Co.	tideland	4,012	suspended
Explorers Drilling Co., No. 1 Fairview, Orange Co.	9- 6-10	945	suspended
Nuoil Co., No. 1 Newport, Orange Co.	29- 6-10	6,485	fishing D.P.
B. & B. Oil Co., No. 1 Newport, Orange Co.	19- 6-10	509	cleaning out
Platt & Collins, No. 1 Costa Mesa, Orange Co.	14- 6-10	2,566	suspended
Mid-Rich Drlg. Co., No. 1 Atwood, Orange Co.	26- 3-9	4,019	suspended
Bridger, J., No. 1 Coyote, Orange Co.	15- 3-10	5,410	suspended
Great American Pet. Co., No. 2 East Coyote, Orange Co.	19- 3-9	1,631	sd. sh. drlg.
Great American Pet. Co., No. 1 Chino, San Bernardino Co.	18- 2-8	2,463	suspended
Great American Pet. Co., No. 3 Chino, San Bernardino Co.	7- 2-8	316	hd. sh. drlg.
Tehama Pet., No. 1 Santa Ana Canyon, S. Bernardino Co.	33- 2-8	2,098	will test
San Diego Pet. Co., No. 1 Chula Vista, San Diego Co.	32-18-2	5,785	hd. sd. drlg.
Edmonds, E. A., No. 1 Trustee, San Diego Co.	29-15-3	2,212	hd. sd. drlg.
Everts Drlg. Co., No. 1 Camp Kearney, San Diego Co.	23-15-3	941	sd. sh. drlg.
Great Coastal Oil Co., No. 1 Elsinore, Riverside Co.	36- 5-5	216	sd. sh. drlg.

Good Flowing Producer in the Rainbow District; Nine Completions in North Louisiana Field

By J. R. CRUMPTON
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Nov. 19.—Short & Hayes' No. 1 J. W. Taylor, Section 10-17-14, a new sand producer in the Rainbow Field, 10 miles northeast of El Dorado, Union County, Arkansas, lived up to its advanced showing on drill stem test a week ago and made a good flowing producer. The well is flowing 866 bbls. of pipe line oil daily from 2½-inch tubing and 1-inch choke from a total depth of 3,366 feet. The gravity of the oil has increased to 30.8 since the hole has cleaned itself. Casing pressure is rather disappointing, registering only 360 pounds with 85 pounds tubing pressure. The new producer, however, has caused quite a flurry of excitement in that district and a number of new locations have been staked, and it is quite certain that numerous wells, now producing from the original discovery horizon 160 feet above the new pay, will deepen to the present pay zone. Original production in that field is logged as Gregory sand, and the new zone is still in the red bed series and in all probability will pay off consistently on top of the structure. The present discovery well was started as a 5,000-foot test when the show was encountered.

One mile north of the Short & Hayes well, the Jovian Oil Corp.'s No. 1 W. H. Perdue, Section 3-17-14, has set 10-inch surface casing at 132 feet and is drilling ahead at 832 feet. The acreage on which this new test is located was blocked before the new discovery and has a contract to drill to 5,000 feet. The results of this test are being closely watched by the oil fraternity in the North Louisiana and Arkansas districts and will either prove or disprove the extent of the lower red bed production. The S. H. A. Oil Corp., composed of Short, Hayes & Alpin, has made location for its No. 1 Townsend in the SW cor. SW NE Section 10-17-14, in the Rainbow area. In the southern part of Union County, Joe Modisette is rigging up on his No. 1 Union Saw Mill Co., Section 14-18-14, with a contract to drill at 5,000-foot hole. The test is 6 miles east of production in the south end of the El Dorado Field and about 4 miles north of the Louisiana-Arkansas line. In the Urbana Field, the McCreslenn Oil Co. has derrick up on its No. 1 E. King, Section 3-18-13. The other new operation in the Arkansas district was announced from Miller County, Ed J. Donohue's No. 1 Beck in Section 33-15-26. It is in the proven area of the limited Miller County Field, east of the city of Texarkana.

In Arkansas County the Grand Prairie Realty Co.'s No. 1 Fischer, Section 6-6s-4w, is temporarily shut down at 450 feet. F. E. Galbreath's No. 1 Pearce, Section 7-17-20, Columbia County, is drilling in gummy shale at 3,336 feet. In Hempstead County, Arkansas Drilling Co.'s No. 1 Jones, Section 11-14-24, on drill stem test developed 10 fourbles of salt water from 2,808-54 feet and is coring ahead in hard lime at 2,875 feet. In the same county F. W. Martin & Co.'s No. 1 Lafferty, Section 17-14-24, has rebuilt a pulled-in derrick, and is fishing for drill stem at 3,700 feet. A deep test in Lafayette County near the town of Stamps, Benedum & Trees' No. 2 Bodcaw Lumber Co., Section 19-16-23, is drilling in hard sandy lime at 4,600 feet. About 9 miles southwest of the Benedum & Trees test and southwest of the town of Lewisville, A. H. Tarver's No. 1 Russell is coring at 1,510 feet. A wildcat north of the Miller County Field, Miller County, King Oil Corp.'s No. 1 C. H. Schroder, Section 24-14-28, is coring at 2,910 feet, and in Section 24-15-26, C. V. Lenz, pioneer operator in that area, is drilling at 2,500 feet on his No. 5 Dale In the field proper, the Magnolia Petroleum Co.'s No. 5 Oliver, Section 3-16-26, is waiting on standard rig to pump from a total depth of 2,940 feet.

NORTH LOUISIANA

This district failed to develop anything of particular interest during the past seven-day period. Nine completions were reported, consisting of three small gassers, two oil wells and four dry holes. W. K. Williams' No. 1 Wemple, Section 15-12-11, DeSoto Parish, is making a small amount of salt water and pumping 10 bbls. of oil daily from 2,734 feet. The Helena Oil & Gas Co.'s No. 2 Heard, Section 16-9-13, in the Converse Field, Sabine Parish, is a 100-bbl. pumper from 2,056 feet. The shallow Blanchard gas field in Caddo Parish furnished two small producers. Pyramid-Louana Oil & Gas Co.'s No. 1-A S. R. Wheeler, Section 4-18-16, is estimated at 500,000 feet of gas from 908 feet, and M. Segall and others' No. 2 P. A. Sharp, Section 11-18-16, is good for 1,500,000 feet of dry gas from 942 feet. In the Monroe Field, Morehouse Parish area, Southern Carbon Co.'s No. 65 fee, Section 14-20-4e, gauged an initial open flow of 5,000,000 feet from a total depth of 2,160 feet. The rock pressure registered 370 pounds.

A shallow test in DeSoto Parish, Jack Clarke's No. 1 Moore, Section 1-13-15, was abandoned at 1,675 feet without a test. The well has been inactive for several months. The Converse area of Sabine Parish and the Zwolle Field, about 15 miles to the southwest, reported two dry holes out of three completions. George L. Pace's No. 1 H. E. Wilson, Section 27-10-13, about 1½ miles north of the Converse Field, was abandoned in salt water sand at 2,009 feet. In the Zwolle area, the Texas Co.'s No. 1 H. E. Wilson, Section 31-8-11, was dry and abandoned at 2,800 feet. The United Gas Public Service Co.'s No. 1 Herold Unit, Section 13-17-12, northeast of the Sligo gas field in Bossier Parish, has all the earmarks of being a good gasser from the Oolitic lime in the Glen Rose of the upper Trinity series. The well, if successful, will extend gas production from this deeper horizon about 1 mile east of a recently completed gas well by the same company. A shallow wildcat test that has attracted some attention from Red River Parish is the O. K. Oil Co.'s No. 1 Franklin Realty Co. in Section 32-11-9. The well, which is located on a 5,000-acre block, is reported to have had a show of gas from the top of the chalk at 1,166 feet. Casing has been set at this depth and the well will be tested within the next few days. Other North Louisiana wildcats follow: Bienville Parish—M. V. Duncan's No. 1 J. Hutton, Section 4-18-7, set 10-inch surface casing at 125 feet. Catahoula Parish—T. R. Hincy's No. 1 Louisiana Central Lumber Co., Section 32-9-6e, drilling at 1,310 feet. DeSoto Parish—Dempsey & Manziel's No. 1 T. D. Thigpen, Section 33-13-13, drilling plug in chalk rock to treat with acid at 1,730 feet; Hester and others' No. 1 Alston, Section 11-11-16, drilling at 2,240 feet; Ben F. Smith's No. 1 Bonds, Section 23-12-11, drilling at 1,514 feet. Natchitoches Parish—Benedum & Trees' No. 1 Carver estate, Section 6-8-7, logged the base of the chalk at 3,880 feet and is drilling in shale at 3,960 feet; Jack Lent's No. 1 Brown Lumber Co., Section 27-9-13, plugged back to 2,470 feet after casing collapsed and will perforate casing from 2,465 feet to 2,470 feet. The old total depth is 3,002 feet. In Red River Parish, near the Bienville Parish line, C. M. Cope's No. 1 Thomas, Section 34-13-8, developed 2,000 feet of salt water on drill stem test from 2,310-75 feet and is now shut down awaiting orders at the latter depth.

It is reported that N. V. Duncan and others of Chicago have taken over a 12,000-acre block southwest of Lake Providence in East Carroll Parish. A tentative location for a test has been made in Section 56-21-12e, but no information is available at this writing as to the depth of the hole. The new test is about 12 miles south of a wildcat abandoned two weeks ago by Holcomb & Thomasson at 3,305 feet.

MISSISSIPPI

Harry W. Elliott's No. 1 Parker-Davis, Palmyra Island, Warren County, encountered gas at 3,130 feet. Seven-inch outside diameter casing was set at this depth but had a bad cement job. They set packer below casing which was unsuccessful. Set whipstock 2,060 feet and drilled new hole to top of pay 3,130 feet. They expect to set a string of 4½-inch casing shortly. This well has never been shut down or abandoned but only working daylight.

Production Estimate

The estimated daily average production of North Louisiana and Arkansas for the week ending November 17 was as follows:

	Bbls.
NORTH LOUISIANA	
Bellevue	500
Caddo light	4,435
Caddo heavy	1,650
Converse	1,435
Cotton Valley	500
DeSoto and Red River	1,565
Elm Grove	375
Haynesville	3,760
Holly	155
Homer	2,685
Pleasant Hill	180
Sarepta-Carterville	585
Urania	3,325
Zwolle	2,895
Total	24,045
SOUTH ARKANSAS	
Champagnolle	1,090
El Dorado	2,380
Lisbon	360
Miller County	1,310
Nevada	885
Smackover light	2,300
Smackover heavy	18,955
Stephens	635
Urbana	2,305
Total	30,220

Wildcat Operations in Louisiana-Arkansas

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

AVOYELLES PARISH

Bell Oil Co.'s No. 1 Woodley, 330 ft. S and W NE cor. NW Sec. 11-3n-5e.
Washing to bottom 1,700 ft.

BIENVILLE PARISH

M. V. Duncan et al's No. 1 Hutton, 400 ft. S, 330 ft. E, NW cor. Sec. 4-18-7.
Set 10-in. 125 ft.

Saline Drlg. Co.'s No. 1 Pardee, Sec. 27-14-6.
Set 10-in. 142 ft.

BOSSIER PARISH

Goldman & Sklar's No. 4 Caplis, 1,527 ft. S, 1,482 ft. E, NW cor. Sec. 25-16-12.
W.O.S.R. 1,559 ft.

Howard & Baird's No. 1 Gold, 150 ft. S and E, NW cor. Sec. 36-20-13.
S.D. for water 1,126 ft.

W. A. Kirkland's No. 1 Jarrett & McKeller, 330 ft. N and W, SE cor. NW NW Sec. 3-21-13.
Set 10-in. 43 ft.

Plain Dealing Synd.'s No. 1 S. H. Bolinger, Sec. 35-23-15.
Rigging up.

Premier Inv. Co.'s No. 14 Wyche, 660 ft. S, 150 ft. W, NE cor. NW NW Sec. 14-19-11.
Comp.; pumping 10 bbls., 451 ft.

Producers O. & G. Co.'s No. 1 Weiner, 660 ft. N and W, SE cor. Sec. 7-17-11.
S.D.; W.O. 3,990 ft.

Leonard Co.'s No. 1 Pearson, 250 ft. S and E, of C Sec. 22-21-14.
Set 8-in. 952 ft.

United Gas Pub. Service Co.'s No. 1 Herold Unit, 50 ft. S and W, NE cor. SW SE Sec. 13-17-12.
Set 7-in. 3,942 ft.; T.D. 4,369 ft.

Woodley Pet. Co.'s No. 5 Schuler, 560 ft. N, 660 ft. E, SW cor. NW Sec. 13-17-12.
Rigging up.

CADDO PARISH

W. T. Bell et al's No. 1 Bostick, 1,830 ft. E, 660 ft. N, SW cor. Sec. 12-22-16.
S.D. for water, 2,540 ft.

Burkett O. & G. Co.'s No. 1 Lindholm, 460 ft. S and E, NW cor. NE SE Sec. 15-17-14.
S.D. 1,046 ft., repairing rig.

O. L. Hickman's No. 1 fee, 1,046 ft. S, 1,700 ft. E, NW cor. Sec. 36-17-15.
Drlg. 2,100 ft.

A. D. King, tr.'s No. 1 Roach, 641 ft. E, 375 ft. N, SW cor. SE Sec. 4-14-16.
S.D. 2,138 ft.

M. Rodgers' No. 4 Muslow, 1,495 ft. S, 1,270 ft. W, C Sec. 4-20-15.
Set 10-in. 42 ft.

G. R. Stevens' No. 1 Hart, 300 ft. N and E, SW cor. E½ SW Sec. 22-21-16.
Rigging up.

Shreveport Oil Corp.'s No. 3-B Muslow, 742 ft. E, 710 ft. S, NW cor. Sec. 4-20-15.
Set 7-in. 1,276 ft.; testing 1,600 ft.

Leonard Co.'s No. 4 S. P. Harrell, 320 ft. N and W, SE cor. NW SW Sec. 2-21-16
Set 10-in. 50 ft.; coring 1,040 ft.

CALDWELL PARISH

Terrell & Price's No. 1 La. Central Lbr. Co., 300 ft. N, 200 ft. W, SE cor. NW NE Sec. 18-11-3e.
T.A. 3,485 ft.

CATAHOULA PARISH

T. R. Hincy's No. 1 La. Central Lbr. Co., Sec. 32-9-6e.
Drlg. 1,310 ft.

DE SOTO PARISH

L. H. Alderson's No. 1 Peek, SE cor. NW NE Sec. 25-11-13.
Drlg. 300 ft.

Bayou Pierre Oil Co.'s No. 1 B. Y. Wemple, C SE NE SW Sec. 14-12-11.
Recmtd. 6-in. 2,606 ft.; T.D. 2,731 ft.

Century O. & Drlg. Co.'s No. 1 Morton, 300 ft. N and E SW cor. SE NE Sec. 27-11-14.
S.D. 1,760 ft.

Jack Clarke's No. 1 Moore, 330 ft. S and W NE cor. NW Sec. 1-13-15.
Abd. 1,675 ft.

W. T. Coleman's No. 1 Rambin Est., 200 ft. S and E, NW cor. SW SE Sec. 13-12-12.
S.D. for wtr. 460 ft.

Dempsey & Manziel's No. 1 Thigpen, 375 ft. S, 330 ft. W, NE cor. SW NE Sec. 33-13-13.
Drlg. plug to treat with acid, 1,730 ft.

DeSoto Pet. Co.'s No. 1 B. Y. Wemple, C S½ SE NE SW Sec. 14-12-11.
S.D. 2,175 ft.

E. L. Foster's No. 1 Youngblood, Sec. 9-11-14.
R.U. to deepen 1,502 ft.

Hester et al's No. 1 Alston, 330 ft. S and W of center of Sec. 11-11-16.
Drlg. 2,200 ft.

George Le Grande's No. 1 Vance, 180 ft. N and W SE cor. SW Sec. 34-13-16.
S.D. for csg. 2,030 ft.

Ben F. Smith's No. 1 Bonds, 200 ft. E, 500 ft. N, SW cor. Sec. 23-12-11.
Drlg. 1,514 ft.

W. K. Williams' No. 1 Wemple, 660 ft. N, 330 ft. W, SE cor. Sec. 15-12-11.
Comp.; pumping 10 bbls. 2,734 ft.

LA SALLE PARISH

F. A. Trichello's No. 1 Urania, Sec. 3-9-1e.
Rigging up.

MOREHOUSE PARISH

Southern Carbon Co.'s No. 65 fee, 2,630 ft. S, 600 ft. E NW cor. Sec. 14-20-4e.
Comp.; 5,000,000 ft. of gas 2,160 ft.

Zeiger & Bacon's No. 1 Crossett, 400 ft. N, 300 ft. W, SE cor. Sec. 41-23-4e.
T.A. 2,111 ft.

NATCHITOCHES PARISH

Benedum & Trees' No. 1 Carrier Est., 300 ft. N and W, SE cor. Sec. 6-8-7.
Drlg. 3,960 ft.

Clyde Crichton's No. 1 Friedman Est., 495 ft. N, 428 ft. E, SW cor. Sec. 52-7-6.
S.D. for wtr., 1,033 ft.

Jack Lent's No. 1 Brown Lbr. Co., 400 ft. S, 300 ft. E, NW cor. NE SW Sec. 27-9-13.
P.B. to 2,420 ft.

(Continued on Page 89)

Development Continues in Central West and Kentucky Fields as During Summer

By GEORGE A. WHITNEY
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Nov. 19.—Development work in most of the fields of the Central West continues unabated, with Central Ohio showing the greatest amount of work. In Kentucky a large number of wells was completed in Ohio and Hancock Counties, which are showing as much activity as during the earlier drilling, with likelihood of much work in Davies, McLean, Allen and other counties.

In the Lima Field of northwestern Ohio, in the Findlay area, Jones & Coyle drilled into the Trenton lime and found a gas well at 1,191 feet, in a wildcat on the Willis Good farm, Section 17, Washington Township, Hancock County, which may bring about a revival there. In Wood County, Ottawa Oil & Gas Co. is drilling on the Frank Emch farm, in Lake Township. In Shelby County, Eilerman Oil Co. is drilling on the Mrs. H. G. Fisher farm, Section 24, Cynthian Township, and Charles H. Frank is reported drilling No. 5, in Section 9, McLean Township. In Mercer County, Petro Producing Corp. is drilling No. 2 on the C. S. and Vesta E. Leymyn farm, Section 35, Butler Township. Kenton Oil & Gas Co. is drilling No. 1 on the Ella Dreuchel farm, Section 8, Pleasants Township, Hardin County. Kenova Oil Co.'s No. 1 on the G. Schinderwolf farm, Section 25, Cessna Township, same county, is drilling.

In Wyandot County, Brown and others' No. 3, on the Edward Orton farm, Section 22, Pitt Township, produced 5 bbls. initial. O. A. Humbarger and others are drilling on the Lawrence Swerline farm, Section 29, Tymochtee Township. Wood and others are shut down at 475 feet in No. 2 on the Edward Orton farm, Section 22, Crane Township, same county.

CENTRAL OHIO

In the Central Ohio Field there were 15 wells completed, 1 with an initial of 2 bbls., 7 gas wells and 7 dry holes.

In Ashland County, Ohio Fuel Gas Co.'s No. 1 Charles H. Stanley farm, Section 18, Sullivan Township, was a dry hole, as no Clinton formation was found. Robinson & Arn's No. 2 J. W. Eagle farm, Section 14, Mohican Township, is a gas well at 591 feet. Ohio Fuel Gas Co. is drilling below 2,100 feet in No. 1 Tully Scott farm, Section 33, Perry Township, and below 1,200 feet in No. 1 John Mutchler farm, Section 3, Hanover Township.

In Lorain County, Ohio Fuel Gas Co.'s No. 1 Jane Burton farm, Lot 19, Grafton Township, was a dry hole at 2,554 feet. Same company is drilling No. 1 Edward Robson farm, Lot 15, Carlisle Township, same county. J. W. Cushing is fishing for tubing in the James and Anna Lewis farm, Lot 15, Avon Township, same county.

In Medina County, McMillan and others' No. 1 Frank E. McCracken farm, Lot 31, Westfield Township, is a dry hole. O. K. Oil & Gas Co.'s No. 47, on the McVickers farm, in Chatham Township, produced 2 bbls. initial. Ohio Fuel Gas Co. is drilling No. 1 Leo Hauck farm, Lot 50, Medina Township. Same company has a rig in for No. 1 on the F. F. Kover farm, Lot 40, Hinckley farm.

In Holmes County, Ohio Fuel Gas Co. has a location staked for No. 1 on the Adaline McKinley farm, Section 27, Washington Township, also for No. 1 on the Margaret Batdorf farm, Section 15, same township. Same company is drilling No. 1 on the Birt B. Finney farm, Section 26, Monroe Township, and has a location for No. 1 on the Maggie Allison farm, Section 21, same township.

In Stark County, East Ohio Gas Co.'s No. 1 on the William J. Pontius farm, Section 16, Plain Township, is a gas well at 4,619 feet. Cunningham Natural Gas Co. has a location made for No. 1 Charles V. Wolfarth farm, Section 3, same township. Brendel Producing Co. has rig in for No. 1 John C. Hinton farm, Section 9, same township. Harry W. Hoover is drilling No. 2 Hoover farm, Section 21, same township. Ohio Fuel Gas Co. is starting No. 2 Clara Warstler farm, Section 18, same township.

In Fairfield County, City Natural Gas Works has a rig up for No. 1 Mertz & Moyer farm, Section 14, Pleasants Township.

In Coshocton County, Preston Oil Co.'s No. 4 Mame Ringwalt farm, in the third-quarter, Newcastle Township, is a dry hole at 3,227 feet.

In Licking County, Preston Oil Co. is drilling No. 3 Wallace Davidson farm, Section 13, Fallsburg Township, and is drilling No. 3 Frank Beckford farm, Section 18, same township. In Perry Township, same county, Blue Rock Oil Co. has a location for No. 9 on the Walter Hoyt farm, Section 17.

In Muskingum County, Pure Oil Co.'s No. 2 Sam Huffman farm, Section 4, Jackson Township, produced 12 bbls. initial at 3,056 feet. Hopewell Oil & Gas Co. is drilling No. 1 Gertrude Vroom farm, Section 3, Licking Township.

In Athens County, Nuzum and others are drilling No. 3 Charles W. Nuzum farm, Fractional Section 34, Carthage Township. In Lodi Township, Ohio Fuel Gas Co. made a location for No. 1 on the H. A. Pinkerton farm, Section 36, and a location for No. 1 L. A. Ruth farm, Fractional Section 18.

In Guernsey County, Ferguson & McCullough's No. 2 Herbert Watson farm, Section 2, Willis Township, is a gas well at 1,369 feet. Same company's No. 1 William Foraker farm, Section 22, same township, is a gas well at 1,365 feet. Same company's No. 1 Francis R. Foraker farm, Section 2, same township, is a gas well at 1,362 feet. Ohio Fuel Gas Co.'s No. 2 J. L. Lent farm, Section 22, same township, is a gas well at 1,355 feet. Same company made a location for No. 4 on the Bacon-Lent farm, Section 22, same township and county. In Jackson Township, same county, J. T. Rosch and others' No. 4 Michael Sherby farm, Section 13, was dry at 1,337 feet. Black Brothers are drilling No. 4 on the R. A. McBride and others farm, in Section 5, Cambridge Township, same county.

In Meigs County, Harrisonville Gas Co.'s No. 1 Jennie Jacks farm, Section 21, Rutland Township, is a gas well at 748 feet. Meigs Development Co.'s No. 1 Malina Luckadoo farm, Section 8, same township, is a gas well at 827 feet. Ohio Fuel Gas Co.'s No. 2 on the Meigs County Savings & Loan Co.'s land, Section 2, same township, is a gas well at 911 feet. In Lebanon Township, same county, Ohio Fuel Gas Co.'s No. 1 Arthur C. Price farm, Section 14, is a gas well at 2,145 feet. John Mayer & Co.'s No. 1 Mona Williams farm, Section 8, same township, is a dry hole at 1,983 feet. Ohio Fuel Gas Co.'s No. 1 S. M. Cross, Section 30, same township, is drilling. Ohio Fuel Gas Co. is drilling No. 1 Guy Wilson farm, Section 8, Rutland Township, and has a location for No. 2 on the James S. Titus farm, Section 4, same township.

In Muskingum County, Mid-East Gas Co. is drilling No. 2 Frederick Haas farm, Section 30, Harris Township, and Fulk & Stanberry has a rig on the William W. Baughman farm, Section 21, same township.

INDIANA

There is some talk of wildcat work in the northwestern part of Indiana, and southwestern Michigan, and in St. Joseph and LaPorte County, especially in the vicinity of New Carlisle in Indiana and in Buchanan, Mich. Mr. White, of South Bend, Ind., is interested.

Jay County in the older days was a nice producing area for both oil and gas at comparatively shallow depths and in the Trenton lime formation, but no real deep holes were drilled. The gas is usually found from 1,000 to 1,500 feet. In this county N. E. Master, old-time operator, brought in a nice gas well recently in No. 1 on the W. A. Frank farm, NW SW Section 19, Noble Township, at a total depth of 1,009 feet; and a commercial gas well in No. 1 Fannie North farm, SE SW Section 24, same township, at 1,100 feet, and is drilling on the A. R. Smith farm, SW SW Section 28, same township.

In Knox County, Mead Oil Co. is drilling No. 1 on the M. Bond farm, NW SW Section 14, Busseron Township, William B. Coffing and C. W. Dice are drilling deeper No. 1 H. B. Giltner, SE Section 9. O. A. Thayer and others are starting No. 1 Noah A. Hall, SW NE Section 15, same township.

In Martin County, A. T. Spaulding and F. G. Fisher are drilling No. 1 on the E. D. and E. S. Yarnell farm, NW SW Section 25, Perry Township.

In Perry County, Charles Dice is drilling No. 1 on the No. 1 Harry Metz, SE SW Section 2, Anderson Township. In Clark Township, Christ Zoercher's No. 1 on the Mary Van Winkle farm, Section 36, was dry. In Tobin Township, Rome Oil Co. is fishing on No. 1 Henry Dutschke farm, NW NW Section 28. In Troy Township, same county, No. 1 on the Rosalia Richardt farm, Section 12, owned by Auburn Stinson, was dry. The Bankable Oil Co. is shut down on the Charles Schrutter farm, SW SW Section 4, same township.

In Pike County, Randall & Stroble's No. 1 on the Ella Miller farm, SW SW Section 14, Logan Township, reported an initial of 10 bbls. at 1,356 feet. Bruner and Abbott's No. 12 on the Shawhan heirs farm, NW NW Section 35, Madison Township, reported an initial of 5 bbls. at 1,004 feet, and same operators are drilling No. 13 farm. In Washington Township, A. E. Davis is drilling after a fishing job on his No. 2 on the Frank Aurand farm, NW SE Section 19.

In Posey County, Joe Wassmer and others' No. 1 drilled by L. D. Henley, SW NE Section 12, Robinson Township, was dry at 1,580 feet, and same parties are drilling No. 2 Lawrence Luigs, NW NE Section 23, and starting No. 1 Lena Falls farm, SW SW Section 13, same township. B. F. Wierback is drilling No. 1 on the Clarence Winternheimer, SE NE Section 22, which was dry at 1,206 feet but probably will be deepened.

(Continued on Page 91)

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Complete Nineteen Wells in the Eastern Fields; Kanawha Oriskany Test Only 30 Bbl. Well

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Nov. 19.—Nineteen completions were reported from the lower eastern fields during the week, 8 producers with an initial production of 101 bbls. and 11 gas wells. There were also 5 dry holes.

In Southeast Ohio, completions were scarce and only one well was completed. In Licking County, Blue Rock Oil & Gas Co. completed No. 8 on the Walter Hoyt farm in Section 17, Perry Township, in the shallow Berea sand at 680 feet. It produced 8 bbls. the first day after shot.

SOUTHWEST PENNSYLVANIA

There were two completions in Southwest Pennsylvania. In Cecil Township, Washington County, Amon and Kaufman completed No. 4 on the Thomas Weaver farm in the Gordon sand at 2,479 feet. It filled up 100 feet in the 6-inch casing and will make about a 5-bbl. pumper.

In Amwell Township, Washington County, Manufacturers Light & Heat Co. completed the test on the R. A. Rankin farm at a total depth of 2,660 feet. The top of the Nineveh Thirty-foot sand was at 2,618 feet and it extended to the bottom of the hole with gas showing at 2,646 feet. It had an initial volume of over 1,500,000 feet and when completed gauged 982,000 feet a day after tests.

In this township Carnegie Natural Gas Co. is drilling No. 2 on the M. C. Manon farm and has reached 375 feet. Its test on the R. M. Carrons farm will probably be spudded this week. New Oil & Gas Co. has started drilling on the Anna Chambers farm, near Chambers Dam, and close to the South Franklin Township line. Wise Oil & Gas Co. has not started the test on the Jacob Snyder farm but the rig is ready.

In South Franklin Township, George Bungard & Co. is down 750 feet on the Phillips farm. The Pittsburgh Coal was at 438 feet. This is about 1,700 feet east of the Dunkard sand streak operations being continued by E. H. and J. B. Tague.

In East Findley Township, Natural Gas Co. of West Virginia is building a rig on the J. C. Sampson farm. Carnegie Natural Gas Co. is reaming out old No. 1 on the S. A. Dague farm at about 2,900 feet. The test on the M. C. Francis farm south of the Clutter farms has reached 1,750 feet. This is being drilled by Myers, Hoskinson and others.

In Greene County, Carnegie Natural Gas Co. has started drilling No. 1 on the Thomas Brewer farm in Whitely Township from the Injun sand and has reached 2,150 feet. In Dunkard Township, the Vance Leases have shut down testing at 2,273 feet No. 1 on the James and Willis Vance farm. In Richhill Township, Wasmuth and Callahan have reached 2,200 feet on the Mary Bell Durbin farm. In the same township, W. W. Stewart has taken over old No. 1 on the Mary Dague farm and is drilling it deeper. It is now at 2,950 feet. In Greene Township, Equitable Gas Co. is drilling deeper No. 1 on the Margaret Kiger farm which is down 2,615 feet.

In Muddy Creek Township, Butler County, the test of James H. Duff and John T. Galey on the Lehigh Portland Cement Co. lease, scheduled for the Oriskany sand, is drilling at about 1,800 feet.

WEST VIRGINIA

There were six producers completed in West Virginia, five of which were in Ritchie County. The Oriskany sand producer on the W. L. Burdette farm in Elk district, Kanawha County, was drilled a little deeper in that formation. The result was disappointing and production was not helped. It now appears to be about a 30-bbl. well, natural. One additional test will soon start in this district. Clyde Oil & Gas Co., composed of H. B. Davenport, B. S. Davenport, John Woodrum, Everett Woodrum, J. B. McLaughlin and R. A. Burns, is building a rig on the M. A. McGraw farm about 1,000 feet slightly northeast of the W. L. Burdette farm. The location is on Little Coopers Creek, and the old farm name is F. W. Shinn. The test of S. B. Avis, trustee, on the W. T. Copen heirs farm, is drilling at 1,655 feet and V. C. Smith and others have completed the rig on the Matheney, Wertz and others lease on the island in Elk River at the mouth of Coopers Creek.

In Ritchie County, in the Lost Run Pool, Boehm & Strickler Oil Co. completed No. 7 on the Boehm & Strickler lease in Clay district in the Injun sand at a depth of over 1,900 feet. It is good for about 20 bbls. a day from the top pay at 1,884 feet and the second pay at 1,900 feet. In this pool Lucky Strike Oil Co. has started drilling a second test on the J. L. and S. C. Robinson farm.

In the Pike Pool in Clay district, Ritchie County, Mahaney and Lucas have completed No. 3 on the J. F. and Laura Kelley farm in the Injun sand at a depth of 1,817 feet showing for 30 bbls. a day. In the same district C. B. Smith and G. B. Hendershot completed No. 2 on the C. W. Wilcox farm in the Injun sand good for 25 bbls. a day. Near this pool in the same district, Hennegan and Hanlon completed a second test on the John Mahaney farm in the Squaw sand at a depth of 2,125 feet. It will make a 3-bbl. pumper. In this district there was one dry hole. S. E. Mackey and others drilled No. 2 on the Charles Wilcox farm to 1,880 feet and it was dry in all formations.

In Union district, Ritchie County, Louis A. Henderson drilled deeper No. 3 on the C. B. Townsend farm, which had been a gas well in the Injun sand, to 1,888 feet in the same formation. It is now showing for a 5-bbl. producer.

In Tyler County, Tyler Oil Co. completed a test on the G. M. Doty farm in Union district in the Cow Run sand and it is producing 5 bbls. a day, natural, and will be shot.

Gas Wells

In Boone County, Hope Natural Gas Co. completed No. 54 on the Federal Coal Co. tract in Sherman district, formerly operated by Godfrey L. Cabot, Inc., in the Berea sand at a depth of 3,463 feet. It is a light gas well, natural.

In Cabell County, on the waters of Guyan Trace in McComas district, about one-half mile east of the gas well on the C. P. Rowsey farm, R. H. Adkins completed a test on the M. J. Johnson farm in the Berea sand showing for about 222,000 feet of gas a day.

In Calhoun County, I. B. Fowler and others completed a test on the I. B. Fowler farm in Sherman district in the Injun sand at a depth of 2,115 feet. It is a gas well gauging about 149,200 feet a day after a 40-quart shot. In this district, F. F. McIntosh completed a test on the Seymore Settle farm in the same formation at 1,931 feet. It has a volume of the same amount, natural. In Lee district, this operator drilled a test on the E. L. Hays farm through the Injun sand to 1,925 feet and it was dry. In this district Jarvis and Ayers completed a test on the Roanna Robinson farm at a depth of 2,353 feet and it will make a light gas well.

In Gilmer County, there were two gas wells. In Center district, McCall Drilling Co. completed a second test on the M. S. Cawthorn farm in the Salt sand at a depth of 1,540 feet and it is showing 780,000 feet a day, natural. In the same district, Norman Dotson and others completed the test on the Bud Stump and others lease in the Injun sand at 1,869 feet and it has a volume of 879,600 feet a day, natural.

In Marshall County, Denver Oil & Gas Co. drilled deeper old No. 1 on the Mary Campbell farm in Cameron district to 1,945 feet. It is a gas well gauging about 460,000 feet a day with the gas showing at 1,937-44 feet. The Pittsburgh Coal was at 640 feet.

In Ritchie County, L. P. Bickel completed No. 3 on the P. W. Morris farm in Murphy district in the Big Injun sand at 1,837 feet. It will make a small gas well. In Grant district, there were several dry holes. Swingle Brothers drilled a test on the Crissel Vincent farm through the Injun sand to 1,905 feet. It was dry in all formations. Dunn Mar Oil & Gas Co. drilled a test on the P. D. Starr farm through the Berea shells to 2,471 feet and it was also dry in all formations. M. Edwards and others drilled a test on the Catherine Freeman farm to 2,175 feet, through the Injun sand, and it was dry.

In Wetzel County, Jason Wade and others completed a test on the Joseph Shuler farm in Proctor district in the Maxon sand at a total depth of 2,128 feet. It is a fair gas well gauging about 1,250,000 feet a day. The top of the sand was at 2,113 feet with gas showing at 2,119-24 feet.

Drilling in West Virginia

In Cabell County, McComas district, R. H. Adkins has reached 1,250 feet on the F. F. Starcher farm. Carney Gas Co. is down 1,375 feet on the James Mills farm. John Kingery and others are drilling at 1,450 feet on the Rosa Midkiff farm, a test. In Guyandotte district, R. H. Adkins and others have reached 1,725 feet on the J. G. Humphrey farm.

In Calhoun County, McCall Drilling Co. is down 870 feet on the Hillery Vannoy farm in Sherman district. Godfrey L. Cabot, Inc., has material on the Henry Kight farm. Starcher and Richards are hauling in material on the Graybill heirs farm. In Lee district South Eastern Oil & Gas Co. has rigged up No. 4 on the John Slider farm. In Center district, Howard Brothers have spudded in on the L. F. Norman farm. Chemical Oil Co. is down 1,650 feet on the Taxwell Taylor farm, No. 7. Park Bowser is down 1,280 feet in No. 9 on the Dora E. Ramsburg farm. In Washington district, Kenny and Phillips are drilling at 1,050 feet on the S. A. Carpenter farm, a test. Litton Gas Co. is down 500 feet on the Lubana J. Jarvis farm. Harley Jarvis reached 1,550 feet on the Clark Wilson farm and shut down testing.

In Gilmer County activity is lessening. In DeKalb district, A. E. Ellis and others have reached 1,945 feet on the Edward Reynolds farm. McCall Drilling Co. is down 1,900 feet on the G. W. Wigner and others lease. T. M. Cain and others are drilling at 1,430 feet on the Harriet Gainer farm, also a test.

In Kanawha County, Valley Gas Co. has reached 1,425 feet in the second test on the G. W. Harless farm in Elk district. Lincoln Gas Co. is drilling at 1,110 feet on the Wittaker tract No. 6. In Malden district, Godfrey L. Cabot, Inc., is drilling at 1,680 feet on No. 8 on the Campbells Creek Coal Co. tract and in Cabin Creek district, the same operator is down 1,913 feet and 1,540 feet in No. 47 and No. 48 on the A. D. Huntington lease.

In Lincoln County the deep test of Harvard Gas Co. has halted at 4,400 feet on the Standard Fuel Gas Co. lease in Washington district and is fishing for the tools. In Union district Lee Sansom, trustee, is drilling at 600 feet on the John M. Sias farm. In Jefferson district, David Gas Co. is drilling at 650 feet on the Alma Collins farm, a test.

Ritchie County

In Ritchie County, Lucas and Mahaney have made a location for another well on the J. F. and Laura Kelley farm, Clay district. H. N. Rinehart has a rig completed for a second test on the George Millbarger farm. Reno Oil Co. has a location on the B. F. Wells farm. In Murphy district, Clem S. Morris is fishing the tools at 460 feet on the Morris and Carter lease. This operator has made a location on the M. S. Drake farm. J. F. Deem is down 1,353 feet on the C. J. Williamson farm, a test. Patton and Wilson have material for No. 7 on their fee lease. Kelley and Mason have started drilling on the B. F. Fleming farm. In Grant district, R. W. Richards is drilling on his fee property.

In Roane County, on the waters of Buffalo Creek in Curtis district, Reedy Oil & Gas Corp. has made a location for No. 3 on the G. A. Knopp farm about 785 feet east of the test on the Maude Knopp farm. In this district, K. M. Hunt and others have started drilling on the Lizzie Moore heirs farm. In Harper district, same operators have started drilling on the Oscar Kelly farm. In Smithfield district Guy Boggess and others are down 1,725 feet on the Darle Young farm. Howard Bartlett and others have reached 1,675 feet on the Leonard Brannon farm, a test. United Fuel Gas Co. is drilling at 1,870 feet on the T. Ferrell farm.

In Wirt County, R. C. Wagner and others are drilling at 1,700 feet on the James W. Ferree farm in Burning Springs district, a test. In Wood County, C. S. Reed and others are moving in a machine on the Ima Dell Reed farm on the waters of Big Run in Williams district.

In Wetzel County, G. N. Yoho and others have started drilling on the George A. Smith farm in Proctor district. Jason Wade and others have resumed on the Lewis Taylor farm, same district, and are drilling at 300 feet. Hannibal Gas Co. is down 975 feet on the James S. Haundenschildt farm, Proctor district.

In Wayne County, the deep test of C. L. Dixon on the Charles Young farm in Stonewall district has reached 4,665 feet.

ALBERTA ASSOCIATION

CALGARY, Alberta, Nov. 17.—The Oil and Gas Association of Alberta held a dinner meeting at Calgary when the following officers were elected: President, Herbert Greenfield; vice president, A. H. Mayland; executive, A. H. Goodwin, W. S. Herron, W. E. McLeod, Herbert Greenfield, W. C. Fisher, J. H. McLeod, F. G. Bird, Stanley E. Slipper, Fred Sheldon, Fred E. Elves, L. A. Snyder, Floyd J. Huff, A. H. Mayland, Everitt Marshall; secretary, D. A. Lane; treasurer, Fred E. Elves. Hugh Allan, minister of lands and mines for Alberta, was elected honorary president. Mr. Allan was the guest speaker and later visited the Turner Valley Field to inspect drilling and gasoline absorption operations.

Showing of Oil in Southeastern Colorado Test; New Locations Reported in New Mexico

By TOLBERT R. INGRAM
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Nov. 19. — Thirty-five units of 40 acres each in the Hobbs Pool in New Mexico, are now classed as water units, an increase of five in the past month. Lea County pools were given a slight increase in allowable outlets for the first half of November. Auction sale of state land leases at Santa Fe yielded $32,625 in bonuses. One completion, two near completions and one location were reported in the Cooper Pool. Gypsy Oil Co.'s No. 1 Cooper made 400 bbls. natural through the tubing. Two completions, two near completions and one new location were reported in the Eunice Pool. Gypsy Oil Co.'s No. 2 Bell-Ramsey made 1,039 bbls. natural, and Skelly Oil Co.'s No. 1 Coleman made 400 bbls. in 12 hours. Repollo Oil Co.'s No. 1 Gloyd was completed in the Jal Pool for 396 bbls. Gypsy Oil Co.'s No. 4 East Grimes, in the Hobbs Pool, gauged 11,146 bbls. after acidizing. Oil Well Drilling Co.'s No. 1 Grimes flowed 240 bbls. in one hour. Three new locations were reported in Eddy County and one in San Juan County.

Trojan Oil & Gas Co.'s test in southeastern Colorado has an important oil show in the Pennsylvanian. Colorado appears to be in line for a leasing play. The Texas Co. abandoned one well on Tow Creek.

In Wyoming, royalty oil from Salt Creek will be sold at auction by the Government in December. Dry Creek Oil Co.'s fault block test in South Oregon Basin is being completed as a gas well. Several wells were completed in Salt Creek and Little Lost Soldier.

The Cut Bank Field in Montana had a disappointing week with five completions showing for failures, two of which were abandoned. There were no new locations. One gas well was completed in Phillips County.

NEW MEXICO

Lea County

The potential for the Hobbs Pool as of November 1 was placed at 2,092,511 bbls. daily from 200 units of 40 acres each, an increase of 7,192 bbls. and no change in the number of units on production. One unit was given a special allowance on account of water, its status being the same since its completion several years ago. Of the remaining 199 units, 35 are classed as water units, an increase of five, with a potential of 137,543 bbls. daily. These have elected to use the 40 per cent acreage and 60 per cent potential plan in determining the daily outlet. The remaining 164 units, which take the 25-75 basis, have a potential of 1,954,968 bbls. The water units include six at the extreme north end of the field and the remainder are on the southwestern flank, extending to the extreme south end of the pool. The new schedule puts 1,440 acres in the water units and 6,560 acres not so classed. The allowable outlet for the field for the first half of November was 33,093 bbls. daily, an increase of 723 bbls. Pipe line runs in October were 1,009,171 bbls., bringing the total since proration went into effect up to 50,517,377 bbls.

The allowable for the Cooper-Lynn area was increased from 1,891 bbls. daily to 2,250 bbls. and the number of units on production remains at 15 with a top outlet of 166 bbls. per unit per day. Pipe line runs in October were 46,829 bbls., a little more than double the runs for September. Jal allowable is 3,577 bbls. daily, practically the same as the last half of October. Jal runs for October were 101,101 bbls.

Eunice allowable was 4,038 bbls. daily from 25 units and October runs were 116,576 bbls.

Cooper Area

One completion, two near completions and one new location were reported in the Cooper area. Gypsy Oil Co.'s No. 1 Cooper, C SW NE Section 23-24-36, an east offset to General Crude Oil Co.'s No. 1 Cushing and a south offset to Humble's No. 1 Cooper, was completed at 3,580 feet in lime. It flowed one head through the casing and flowed at the rate of 400 bbls. a day through the tubing. The pay was found at 3,550-60 and 3,571-74 feet.

Stanolind Oil & Gas Co.'s No. 2-A Meyers, C NE NE Section 22-24-36, topped the pay at 3,489 feet and was drilled to 3,505 feet. It cemented the 7-inch at 3,489 feet with 175 sacks and is waiting.

Humble Oil & Refining Co.'s No. 1 Thomas, C SW SE Section 23-24-36, which encountered water at a total depth of 3,602 feet and has been plugging back, will be completed as a gas well. It plugged back to 3,586 feet without improving conditions and then plugged back to 3,470 feet.

The new location is the Tide Water Oil Co.'s No. 1 Harrison, C SW SE Section 26-24-36, between productive areas.

Humble Oil & Refining Co.'s No. 1 Coats, C NW NE Section 10-24-36, which had a bad fire several weeks ago, has been unable so far to make any new hole. It ran the 7-inch over the drill-stem and then the string parted and it is shut down for orders. Empire Gas & Fuel Co.'s No. 1 Everett, C NE SW Section 35-24-36, cemented the 12½-inch on bottom at 76 feet, in red beds, with 50 sacks, and is waiting. Continental Oil Co.'s No. 1 Gates, C NE NW Section 23-24-36, is fishing for four joints of parted 7-inch at 3,406 feet, in lime. The Amerada Petroleum Corp.'s No. 1 Everett, C NE NW Section 35-24-36, topped the anhydrite at 1,214 feet and is drilling in that formation at 1,320 feet. The elevation is 3,299 feet. The Texas Co.'s No. 1 Everett, C SE NW Section 35-24-36, is bottomed at 1,638 feet in anhydrite, and is waiting after cementing the 9⅝-inch at 1,633 feet with 1,000 sacks. The top of the anhydrite was at 1,195 feet. Gypsy Oil Co.'s No. 2 Cooper, C NW SE Section 23-24-36, has cellar and pits completed. General Crude Oil Co.'s No. 3 Meyers, C NW SE Section 22-24-36, cemented the 13⅜-inch on bottom at 1,394 feet in red beds with 297 sacks and is waiting. Phillips Petroleum Co.'s No. 9 Woolworth, C NW NE Section 27-24-36, is shut down at 1,410 feet in anhydrite waiting for the 9⅝-inch. The 12½-inch was cemented at 204 feet with 150 sacks. Stanolind Oil & Gas Co.'s No. 3-A Meyers, C SW NE Section 22-24-36, has completed cellar and pits, and the Humble Oil & Refining Co.'s No. 3 Cooper, C SW SE Section 14-24-36, is building rig. Phillips Petroleum Co.'s No. 6 Woolworth, C NW NW Section 26-24-36, is bottomed at 1,400 feet in salt and is waiting after cementing the 9⅝-inch at 1,375 feet with 350 sacks.

Eunice Area

Two completions, two near completions and one new location were reported in the Eunice area. Gypsy Oil Co.'s No. 2 Bell-Ramsey, C SW NW Section 9-21-36, a north offset to its No. 1 Bell-Ramsey, was completed in the pay at 3,750-3,886 feet for 1,039 bbls. natural and 1,250,000 feet of gas the first 24 hours. The 4¾-inch was cemented at 3,471 feet with 100 sacks.

Skelly Oil Co.'s No. 1 Coleman, C NW NW Section 17-21-36, was completed at 3,900 feet and flowed 400 bbls. through the tubing in 12 hours with 1,000,000 feet of gas. The 7-inch is at 3,708 feet.

Continental Oil Co.'s No. 17-A-4 Meyers, C NE SW Section 17-21-36, is bottomed at 3,997 feet and after being retreated with 2,000 gallons of acid swabbed down 1,000 feet of fluid in 10 hours. It was then re-treated with 1,500 gallons and made an estimated 200 bbls. of oil and 25 bbls. of water a day. It is standing treated again with 2,000 gallons.

Another near completion is Humble Oil & Refining Co.'s No. 1-B State, C SW NW Section 29-21-36, at 3,971 feet, total depth. Drill-stem test at 3,897-3,944 feet yielded 35 feet of fluid in one hour. Another test was made at 3,940-71 feet and yielded 100 feet of oil in 11 minutes. It is running the 7-inch.

The new location is Skelly Oil Co.'s No. 1-B State, C NW NW Section 16-21-36, an east offset to Tidal Oil Co.'s No. 3 Coleman. Cellar and pits have been completed.

Tide Water Oil Co.'s No. 4 Coleman, C SE NE Section 17-21-36, cemented the 9⅝-inch at 1,403 feet with 450 sacks and is drilling at 2,787 feet in brown lime. Gypsy Oil Co.'s No. 2 Bell-State, C SE SE Section 8-21-36, is building rig. The Texas Co.'s No. 2 Rector, C SE SE Section 30-21-36, is drilling at 3,200 feet in lime and anhydrite. Shell Petroleum Corp.'s No. 1 State-Endura, C SE NE Section 12-21-35, is drilling at 2,332 feet in salt and anhydrite. Shell-Devonian's No. 1 State, C SW NE Section 20-21-36, plugged back from 4,171 feet to 4,090 feet and had 75 feet of water in one hour and will plug back again. Continental Oil Co.'s No. 18-A-2 Lockhart, C SW SE Section 18-21-36, is moving in rotary, and its No. 30-A-1 Lockhart, C SE NE Section 30-21-36, has cellar and pits completed. Same company's No. 1-B-9 Meyers, C NE SW Section 9-21-36, cemented the 10-inch at 304 feet in red beds with 150 sacks and is waiting, and its No. 8-A-2 Meyers, C SE SW Section 8-21-36, is drilling at 3,600 feet in lime. Atlantic Oil Co.'s No. 1-F State, C SW SW Section 29-21-36, is drilling at 1,992 feet in anhydrite. The Peerless Oil & Gas Co.'s No. 1 State, C NW SW Section 29-21-36, has cellar and pits completed.

Jal Area

Repollo Oil Co.'s No. 1 Gloyd, SW cor. SE Section 12-25-36, Jal area, an east offset to its No. 1 Hanagan, was completed at 3,332 feet for 396 bbls. in 15 hours through the 2½-inch tubing at 3,325 feet. The pay was at 3,298-3,332 feet and the 7-inch was cemented at 3,296 feet. Back pressure on the casing was 800 pounds and on the tubing 500 pounds.

Phillips Petroleum Co. has made a location on the Woolworth permit in the C NE NE Section 3-25-36.

Empire Gas & Fuel Co.'s No. 1 Dyer, NE SW SE Section 31-25-37, cemented 12½-inch on bottom at 78 feet with 55 sacks. E. B. Guess' No. 1-B Justis, SW NW NW Section 20-25-37, is shut down at 630 feet for rig repairs. The Texas Co.'s No. 2-B Shepard, NW NE SE Section 6-26-37, had a gas show at 2,806 feet with an increase at 2,954-62 feet and is drilling at 3,035 feet in lime. The Continental Oil Co.'s No. 12-A-2 Wells, C NW NE Section 12-25-36, is drilling at 2,810 feet in lime.

Hobbs Area

Gypsy Oil Co.'s No. 4 East Grimes, C NE NE Section 33-18-38, on the east side of the Hobbs Pool, which was reported completed last week for 3,300 bbls. initial, was treated with 2,000 gallons of acid and made 11,146 bbls. of oil with 15,000,000 feet of gas. Total depth is 4,175 feet.

Oil Well Drilling Co. and Southern. Exploration Co.'s No. 1 Grimes, SW NE SE Section 20-18-38, on the east side of the pool, is a completion and will make a good well. From the pay at 4,203-44 feet, also total depth, it flowed 240 bbls. of oil with 7 per cent basic sediment and 5 per cent water in one hour. It was then shut in for proation test.

National Securities Oil Co.'s No. 1 Linam, NE SE SW Section 33-18-37, is shut down at 4,272 feet for tools.

Lea Area

The Texas Co.'s No. 4-A Lynch, C SE SE Section 34-20-34, is drilling at 2,635 feet in salt, and its No. 1 Swearingin, C NE SW Section 8-20-34, is cleaning out after cementing the 10-inch on bottom at 700 feet. Same company's No. 1 Elliott, C NE NE Section 22-20-34, cemented the 8¼-inch on bottom at 1,650 feet, in anhydrite, with 75 sacks, and is rigging up cable tools.

Caprock Area

Vierson & Brown's No. 1 Robinson, C NW SE Section 14-11s-32, to the northwest of the Hobbs Pool, has cellar and pits completed.

Big Eddy Area

Stanolind Oil & Gas Co.'s No. 1 Duncan, E SE SW Section 30-21-30, set the 12½-inch at 110 feet and is drilling at 670 feet in salt.

Maljamar Area

Maljamar Oil & Gas Co.'s No. 4 Baish, NE SE NE Section 21-17-32, set the 10-inch at 2,330 feet and deepened the hole to 2,350 feet. At this depth the hole was full of oil, but it was decided to drill deeper before completing.

Eddy County

Three new operations were reported in Eddy County. Neal Wills and others' No. 1 Montgomery permit, CSL SW NE Section 10-23-30, a wildcat southeast of Salt Lake and the Big Eddy structure, is a location. Flynn, Welch & Yates' No. 70 State, C SW NW Section 27-18-28, Artesia area, is drilling at 305 feet in red beds, and the third new operation is the Pecos Valley Gas Co.'s No. 10 Vandagriff, Section 8-17-28, Artesia area.

Red Lake Oil Co.'s No. 3 State, SW cor. NE Section 22-17-28, in the new district north of the Artesia Pool, is drilling at 1,034 feet in anhydrite and lime. This was reported a location last month by Van Welch, Jr., and others.

Leonard, Inc.'s No. 1 Robinson, C NE SW Section 25-16-31, Majamar area, an old well drilled to 3,885 feet by the Texas Production Co. and deepened by present operators, was recompleted at 4,280 feet for 18 bbls. of oil daily and 100,000 feet of gas. The pay was at 3,835-3,965 feet and the 2-inch tubing was run to 4,280 feet.

Flynn, Welch & Yates' No. 2 Story, C NE SW Section 30-19-30, Getty area, is drilling at 198 feet in sand and had a

hole full of water at 184 feet. A. & M. Petroleum Co.'s No. 1 State, SW NE Section 15-21-27, Carlsbad district, is drilling at 970 feet in lime with a show of sulphur water.

Chaves County

Roswell Oil Syndicate's No. 1 Hinkle, C NE SE Section 17-11-27, Roswell district, topped the lime at 1,137 feet, set the 8¼-inch at 1,142 feet and is drilling at 1,320 feet in lime. C. J. Frank and others' No. 1 Roswell Insurance, NE cor. SE Section 30-11-25, is bottomed at 971 feet in lime and is standing treated with acid after setting the 6⅝-inch at 774 feet with 40 sacks. Comanche Drilling Co.'s No. 1 Sloop-Purcell, NE cor. SE Section 10-11-26, is running the 8¼-inch to bottom at 600 feet, in the red beds.

Roosevelt County

Claudell Development Co.'s No. 1 Wilmes, C SW SE Section 21-2s-30, Pomeroy district, was drilling on November 8 at 1,380 feet. At 1,230-35 feet it had a good showing of heavy rainbows in the Rustler gray sand and these showings have persisted to the present depth. On this key bed the well has maintained its high structural position.

San Juan County

A new operation on the Rattlesnake Dome in the Navajo Indian Reservation is Continental Oil Co.'s No. 39, SE NW NW Section 12-29-19, rigging up Star machine.

Lease Sale

Monthly auction sale of oil and gas leases on state land at Santa Fe on November 10 resulted in the sale of 21 tracts out of the 26 offered, the highest bids aggregating $32,625. The highest bidding was for Tract 14, consisting of 1,800 acres in Sections 16, 17, 22, 27, 33 and 34-12s-36e. The Ohio Oil Co. was high with a bid of $8,136. Other bidders were the Shell Petroleum Corp., Ed Owen and the Skelly Oil Co. High bids for other tracts were as follows:

Tract 1, 1,044 acres in Townships 8, 9, 11, 12 and 13s, Ranges 32, 33 and 34e, Roy G. Barton, Clovis, N. Mex., $251.50.

Tract 2, 1,025 acres in Townships 13, 14 and 15s, Ranges 28, 31, 32 and 33e, Ralph Gallinger, Hollywood, $102.58.

Tract 4, 1,480 acres in Townships 24, 25 and 26s, Ranges 32 and 33e, Norrins Realty Co., Los Angeles, $153.

Tract 5, 960 acres in Sections 14, 16 and 20-11s-34, Magnolia Petroleum Corp., $650.

Tract 6, 2,160 acres in Sections 23, 24, 25, 27, 29 and 33-11s-34, Humble Oil & Refining Co., $1,425.

Tract 7, 2,174 acres in Sections 8, 11, 15, 16, 17, 18 and 19-11s-35, Humble Oil & Refining Co., $1,782.97.

Tract 8, 1,115 acres in Sections 16, 19, 20 and 21-11s-36, J. P. Cusack (Phillips Petroleum Corp.) $1,694.91.

Tract 9, 837 acres in Sections 3, 10 and 12-11s-37, Lee Jones, Jr., San Antonio, $850.

Tract 10, 1,800 acres in Township 11s, Ranges 36 and 37e, J. P. Cusack, $2,262.

Tract 12, 1,155 acres in Sections 5, 7 and 8-11s-38, Wilson Keys, Midland, Tex., $1,305.71.

Tract 13, 1,600 acres in Sections 9, 10 and 15-11s-38, Ed Owen, San Antonio, $1,620.

Tract 15, 920 acres in Township 12s, Ranges 37 and 38e, Phillips Petroleum Co., $1,446.

Tract 17, 2,366 acres in Township 14s, Range 36e, J. P. Cusack, $2,982.18.

Tract 18, 1,040 acres in Sections 14, 23, 24 and 25-11s-36, H. C. Upton, San Angelo, $1,196.

Tract 19, 680 acres in Sections 1, 10 and 16-17s-34, Ed Owen, $2,595.

Tract 20, 160 acres in Sections 6, 7 and 14-17s-35, H. L. Lowe, Lovington, $409.70.

Tract 22, 320 acres in Sections 32 and 36-17s-38 and 39, Gypsy Oil Co., $1,611.

Tract 23, 120 acres in Sections 2, 3 and 35-19s-37, Magnolia Petroleum Co., $1,000.

Tract 24, 160 acres in Sections 18 and 20-20s-36, W. E. Lee, Roswell, $205.

Tract 26, 2,558 acres in Township 35s, Range 35e, Shell Petroleum Corp., $946.68.

Results of the sale were furnished the writer through the courtesy of Roy G. Barton, Clovis, N. Mex.

COLORADO

Prowers County

Interesting developments are pending in Trojan Oil & Gas Co.'s No. 1 Lotus Oil, NW NE NE Section 15-23-46, Lamar district, in the southeastern corner of the state. At last reports the well was standing at 4,035 feet, total depth, with the 6⅝-inch at 3,941 feet. It had a show of live green oil at 3,954-61 feet in lime and another at 4,019-33 feet. The oil tests 37 degrees gravity A.P.I. scale. Reports as to the extent of the showing vary, but one is to the effect that it bailed 1 bbl. a day from a break in the Lansing-Kansas City lime. The showing evidently is considered important as the operators are making arrangements to acidize the well. There is considerable interest in the southeastern Colorado territory where the Pennsylvanian is the principal objective rather than the younger formations which are within reach of the drill in northeastern Colorado. Extensive geological work has been done in that area in the past few years and several of the major companies, including the Gypsy Oil Co., the Continental Oil Co. and the Texas Co. have blocks in the general area, especially to the north of Lamar test.

The entire eastern Colorado area is receiving considerable attention at this time and there are indications that a lease play exceeding former plays is in prospect. Phillips Petroleum Co. has a seismograph party working out of headquarters at Limon. This may be experimental work to determine the effects of shooting through the Tertiary. Ramsey Petroleum Corp. has a large block north of Limon which has not been drilled. It is reported, but not confirmed, that the Texas Co. has a party working out of Eads. Continental Oil Co.'s seismograph crew is still working out of Hugo and the Indian Territory Illuminating Oil Co. has been doing extensive work. It recently leased up a block in Yuma County. Most of the acreage leased in Morgan, Weld, Logan and other counties in the northeastern part of the state two or three years ago is still held by major companies. It is not going too strong to say that the entire area may be dotted next year with geological crews.

Archuleta County

Oil City Petroleum Co.'s No. 2-X Garnett, Lot 3, SW Section 24-33n-1e, Price district, is bottomed at 770 feet and underreaming the 8¼-inch at 720 feet, and Navajo Oil Co.'s No. 1 Crowley, SW cor. NE Section 11-32-1e, shut off water at 475 feet with the 8¼-inch and is drilling at 517 feet with a show of oil in the Morrison.

Montezuma County

McElmo Oil Co.'s No. 1 West, NE NW NE Section 31-36-17, McElmo Canon district, is bottomed at 2,640 feet in the top of sand and waiting for pipe. It reports a show of gas in the sand estimated at 50,000 feet a day. The sand just topped is estimated by the drillers to be 50 feet thick, based on the log of the old Midwest well.

El Paso County

The Utemoor Syndicate, which originally started its No. 2 Carson, NW NE NE Section 10-16-66, Fountain district, has again taken over the operation from the Colorado Springs Oil & Natural Gas Co., which drilled it to 2,470 feet, corrected depth. The new interests have resumed. The 5⅛-inch was lowered to bottom to shut off water and will be carried. It is drilling at 2,512 feet in what the drillers say is the Glencairn shale, just above the Lakota.

Las Animas County

Mountain States Oil Corp.'s No. 1 Nikola, C NE SE Section 10-34-62, Garcia district, cemented back from 1,740 feet to shut off about 80 feet of cavey ground.

Boulder County

Leslie R. Steele's No. 1 Cole, NW cor. NE Section 33-1n-70, Parallel Dome, landed the 6¼-inch at 3,270 feet and is drilling ahead.

Moffat County

Stanolind Oil & Gas Co.'s No. 14-SD Parkinson, NE SW Section 22-4n-92, Iles Dome, is bottomed at 3,301 feet, 3 feet in the objective Sundance, and is cementing pipe at 3,298 feet.

Routt County

The Texas Co.'s No. 8 Quaintance-Hocking, NE SW NE Section 18-6n-86, Tow Creek, was dry and abandoned at 3,590 feet. The Frontier, which is not as well defined in northwestern Colorado as in Wyoming, was cut at 3,430-76 feet, was very hard and had a slight show of oil and gas. Tow Creek production comes from fractured Mancos shale above the Dakota. Several tests drilled to the Dakota all carried water.

Park County

South Park Oil Co.'s No. 1 State, SE cor. SW Section 16-11s-75, Hartsel district, is drilling at 450 feet.

WYOMING

The Secretary of the Interior will receive bids at Washington for royalty oil produced on government land in Salt Creek on December 10. Bids may be made for the oil for one, two or three-year periods beginning January 1, 1935. Royalty oil in Salt Creek amounts to about 13.6 per cent of the field's production and amounted to 1,001,387 bbls. in 1932; 885,085 bbls. in 1933; and 546,743 bbls. in the first eight months of 1934. Producers & Refiners Corp., whose principal assets were acquired last spring at a receivers' sale by Consolidated Oil Corp., held the contract as highest bidder in December, 1931, its bid being a premium of 22½ cents a barrel over the posted Mid-Continent price.

Supervisors of the U. S. Geological Survey in charge of oil and gas operations on the public domain have received copies of regulations issued by the department for taking over water wells drilled on government land. The regula-

Three South Turner Tests in the Lime; Home Oil Sells to Royalite Oil Co.

By VICTOR LAURISTON
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Nov. 17.—Deliveries to the Calgary refineries from the Turner Valley Field in October totaled 85,613 bbls., compared with 84,041 bbls. in September. Imperial Oil Refineries took 75,415 bbls., against 77,868 bbls. Deliveries to Bell Refining Co. increased from 6,173 bbls. to 10,198 bbls., the Bell refinery taking 5,600 bbls. from Model Oils, Ltd., which previously had delivered to the Imperial refinery.

For the 10 months, deliveries from the Turner Valley Field aggregated 889,728 bbls. compared with 578,963 bbls. in the same period of 1933; indicating the year's total will pass the 1,000,000-bbl. mark for the first time since 1931, when deliveries totaled 1,199,424 bbls.

Three Tests in Lime

In the South Turner Valley Field, three tests in Section 28-18-2w5 are drilling in the lime. Carleton Royalties' No. 1, LSD 2, got the lime at 5,460 feet, establishing a new record by getting the deep formation in 115 days' elapsed time. The 8-inch casing was cemented at 5,490 feet and drilling resumed. Spooner Oils' No. 5 Anaconda, LSD 1, same section, is drilling in a tight formation below 5,611 feet and about 100 feet in the lime, with gas flow around 2,000,000 feet. Pacalta Oils' No. 1, LSD 7, has resumed from 5,120 feet after changing to rotary outfit.

In the same section Publix Oil & Gas Co.'s No. 1, LSD 8, is redrilling below 4,670 feet and getting close to the Dalhousie sand. It has a lot of oil in the upper horizons. Renfrew Royalties' No. 1, LSD 3, is below 3,250 feet, with additional oil showings. British Dominion Oil & Development Corp.'s No. 4, LSD 6, is running casing to 3,820 feet. It is the most westerly test in Section 28, and will determine the theory that the lime on the west side of the structure yields crude oil instead of naphtha. It is logging closely with the producing wells in this section.

In Section 21-18-2w5, in the extreme south end, Union-Freehold Oil Corp.'s No. 1, LSD 8, is changing to rotary to deepen from 4,680 feet.

Anglo-Canadian Development & Holding Co. has been organized and has taken over the contract for completion of North West Royalties' No. 1, LSD 5, Section 21-18-2w5. Directors include W. Gordon Egbert, F. P. Byrne, W. E. Gray, H. E. Howard and John Sherman. North West's No. 1 resumed from 1,178 feet and is below 1,475 feet. It is on the western edge of the structure which trends southeast and northwest, and has been drilling in formations not present in the older areas of South Turner Valley. Several good gas shows have been met. John Sherman is in charge as field manager.

On the east side, Nolan-Hungerford Royalties' No. 1 Rand, LSD 5, Section 34-18-2w5, is below 3,665 feet. Merland Oil Co.'s No. 2, LSD 13, Section 27-18-2w5, is below 1,050 feet and checking closely with No. 1 producer in the same LSD.

Central Turner Valley

In the Central Turner Valley Field, New McDougall-Segur Oil Co.'s No. 7, Section 12-20-3w5, is at 3,700 feet and bailing with indications of a small light crude producer.

Home Sells to Royalite

Shareholders of Home Oil Co., meeting at Vancouver, British Columbia, approved sale of its interests in Section 20-19-2w5, South Turner Valley, to Royalite Oil Co. in return for 20,000 shares of Royalite stock. The sale covers the Home company's entire Turner Valley holdings, except drilling equipment, but does not include a 25 per cent interest in Home Oil Distributors, Ltd., a marketing company operating in British Columbia. Of the 20,000 shares of Royalite stock, 1,667 are set aside to meet liabilities in respect to royalty contracts and participation in production.

Operations of the Home Oil Co. for 1933 showed a revenue of $68,020.86 from production, with operating expenses amounting to $22,538.82. Officers and directors were re-elected: Chairman of board, Gen. J. W. Stewart; president, Col. Nelson Spencer; vice president, Gen. V. W. Odlum; managing director, Major James R. Lowery; chairman of executive committee, W. H. Malkin; secretary-treasurer, George F. V. Hudson; directors, George M. Bell, Stanley Burke, Gordon Farrell, J. W. de B. Farris, A. L. Hager, Col. E. Gerald Hanson, George S. Harrison, R. H. B. Kerr and Dr. A. B. Singleton.

Royalty Increase Disputed

The action of the Alberta government in increasing the royalty on Turner Valley production from 5 to 10 per cent, effective January 1, 1935, may be challenged. Provision for an upward scaling of the royalty was made by order-in-council in 1920, and the legal challenge is based on the contention that most of the leases granted between 1910 and 1913 provided an option for renewal on the

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tions were promulgated by Director W. C. Mendenhall under the provisions of the O'Mahoney bill passed at the last session of Congress. The ideas suggested in the bill, under which water wells may be acquired by the Government for use on public lands or leased to individuals or corporations, were suggested by A. J. Hazlett, veteran editor of the Inland Oil Index, of Casper.

Albany County

California Co.'s No. 1 Holst, NE SE SE Section 13-17-77, Quealy Dome, is reported to be in the top of the objective Dakota at around 3,390 feet and to be showing some oil. Last scout report was to the effect that it was coring at 3,178 feet.

Carbon County

Argo Oil Co.'s No. 1 Government, NE cor. SE Section 5-24-87, O'Brien Springs, is drilling at 1,500 feet.

Hot Springs County

California Exploration Co.'s No. 1 Government, NE SE NE Section 12-44-97, Waugh structure, is drilling at 3,358 feet.

Natrona County

Sinclair-Wyoming Oil Co.'s No. 5-F, NE SE NW Section 19-40-78, Salt Creek, an old well drilling deeper from 2,500 feet, was completed at 2,522 feet for 18 bbls. initial. Same company's No. 4-J, NW SE SE Section 30-40-78, was deepened 41 feet to 2,375 feet and recompleted for 5 bbls.

Niobrara County

Interstate Oil & Refining Co.'s No. 1 Morrell, NW NE SE Section 2-39-61, West Mule Creek, is bottomed at 2,845 (cor.) feet and reaming at 2,812 feet to lower the 4¾-inch to the top of the sand. Hole has several hundred feet of oil in it.

Park County

Dry Creek Oil Co.'s No. 1 Government, Lot 2 (NE SW), Section 9-50-100, in a fault block south of the Oregon Basin Field, was completed as a gas well in the second Wall Creek at 1,151-57 feet and gauged 11,000,000 feet a day with a rock pressure of 500 pounds. This well gauged 14,000,000 feet in the first sand at 900-935 feet, the gas being killed to go deeper. The 5-7/16-inch was set at 1,148 feet. Location was spotted by C. T. Lupton, of Denver. The discovery is expected to accelerate drilling in fault blocks around a number of structures in the Big Horn Basin.

Val M. Kirk's No. 2 Kirk, SE SW SW Section 24-58-98, Frannie Dome, reported a completion last week, is swabbing 300 bbls. a day. Kirk and associates also control the Dry Creek Oil Co., which brought in the Oregon Basin gasser.

Sublet County

Calmonica Petroleum Co.'s No. 17-3, NW cor. NE Section 17-27-113, La Barge district, is testing oil show in thin sands at 2,190-2,200 feet. It tested 7 bbls. a day at 2,100 feet and tubing was pulled to drill deeper.

Sweetwater County

Sinclair-Wyoming Oil Co.'s No. 31-A, NE SE SE Section 10-26-90, Lost Soldier district, an old well deepened from 363 feet, was recompleted at 598 feet for 90 bbls. in 20 hours from sand at 580-95 feet.

Washakie County

Wyoming Oil & Refining Co.'s No. 1 Frison, NW SW NW Section 14-48-91, north of Hidden Dome, is spudding.

MONTANA

Glacier County

Five completions in the Cut Bank Field yielded more disappointment than anything else and two of these were plugged and abandoned and a similar fate probably awaits the others.

Fist and others' No. 1 Harper, C NE NE Section 21-34-6w, half a mile west of the nearest producer, made only 2 bbls. after standing eight hours. It had a show of oil at 3,050 feet, topped the Ellis at 3,070 feet and was drilled to 3,091 feet. It may be abandoned.

Watson and others' No. 1 Simero, NE SW NE Section 1-33-6w, an outside well on the west and just north of the town of Cut Bank, had a show of gas in the Cut Bank sand at 2,887-95 feet, but no oil, and was drilled to 2,960 feet and plugged and abandoned.

R. C. Jeffries' No. 1 Lukens, C SE SE Section 1-33-6w, in the town of Cut Bank, was drilled to 2,970 feet and had 800 feet of fluid from sand at 2,962-68 feet.

Lawler & Hoer's No. 2 Harland, C NW NW Section 8-33-5w, a mile to the east of Cut Bank, was plugged and abandoned at 2,843 feet.

The results in the wells around Cut Bank indicate that town lot drilling holds forth little promise.

Hannah-Porter Co.'s No. 2 Britton, SW NE NE Section 23-34-6w, had only 300 feet of oil from the sand at 2,870-92 feet and may be plugged and abandoned. Total depth is 2,900 feet.

The Texas Co., whose wells have run better than the average, broke the bad luck spell this week with a near completion in its No. 5 Purdy, E NW NW Section 35-35-6w. It is coring at 2,904 feet with 2,350 feet of oil in the hole and looks as if it will make a good well.

C. P. Castle's No. 1 State, SW cor. Section 36-35-6w, topped the Colorado at 425 feet and is drilling at 1,030 feet. A. B. Cobb's No. 4 Walberger, SE cor. Section 35-35-6w, is spudding at 150 feet. Consolidated Gas Co.'s No. 1 Tribal, E NE NE Section 34-35-6w, is drilling at 1,955 feet, and its No. 2 Tribal, NE SE SE Section 34-35-6w, is drilling at 1,570 feet.

Indian Oil Co.'s No. 1 Reickhoff, SW SE Section 3-34-6w, is drilling at 2,450 feet, and its No. 2 Winkler, SW SW Section 23-35-6w, is shut down at 2,585 feet.

Nadeau Brothers No. 1 Farmers State Bank, C NW NE Section 17-33-5w, is spudding at 275 feet.

R. C. Tarrant's No. 2 Getty, NW cor. SE Section 2-34-6w, is shut down at 2,700 feet, and his No. 5 Haglund, Jr., C SW NE Section 13-34-5w, is drilling at 2,690 feet. His No. 3 Miller, E NE NE Section 24-34-6w, is drilling at 2,150 feet. The Texas Co.'s No. 1 Kneale, C SW NW Section 14-35-6w, is standing with the 7-inch cemented at 2,880 feet.

Stillwater County

Continental Oil Co.'s No. 1 Orr, SW NW SE Section 18-5s-17, Dean-Ingersoll district, is shut down for the winter at 2,945 feet. It topped the Frontier at 638 feet and the Kootenai at 2,065 feet. There was but little Dakota sand which showed some oil. The objective is the Tensleep.

Petroleum County

Guy Smith and others' No. 3, NE SE SW Section 33-14-26, Flatwillow, found the Kootenai dry at 1,016-64 feet, and is drilling at 1,100 feet.

Liberty County

Western Natural Gas Co.'s No. 3 Shaffer, N SW SE Section 14-37-4e, Whitlash district, topped the Cut Bank sand at 2,260 feet, where it had a show of oil, and shut down for pipe. J. H. Hamilton and others' No. 1 Northern Farms, C NE SW Section 10-37-5e, Flat Coulee, landed the 10-inch at 1,800 feet.

Phillips County

Bowdoin Gas Utilities Co.'s No. 528

LEGAL

Call for Bids To Purchase Royalty Oil Accruing to the United States from the Salt Creek, Wyoming, Oil Field. Pursuant to the provisions of Section 36 of the act approved February 25, 1920 (41 Stat. 437), sealed proposals, in duplicate, will be received in the office of the Secretary of the Interior, Washington, D. C., on or before noon December 10, 1934, from responsible bidders for the purchase for a period beginning January 1, 1935, of all royalty oil accruing to the United States from Government lands in the Salt Creek, Wyoming, oil field. The Government royalty oil from the Salt Creek field amounts to about 13.6 per cent of the production of the field and for the calendar year 1933 amounted to 1,001,-337 barrels, for 1933 to 835,685 barrels, for the first eight months of 1934 to 544,743 barrels. The average gravity in all years was in the range from 36.0 to 36.9 degrees A.P.I. Additional information may be obtained from the Director, Geological Survey, Department of the Interior, Washington, D. C., or the Supervisor, U. S. Geological Survey, Casper, Wyoming. Bids are invited on three separate items as follows: Item 1. Royalty oil for a period of one year beginning January 1, 1935, and ending December 31, 1935. Item 2. Royalty oil for a period of two years beginning January 1, 1935, and ending December 31, 1936. Item 3. Royalty oil for a period of three years beginning January 1, 1935, and ending December 31, 1937. Bids must be in the following exact form: "For the period beginning January 1, 1935, and ending December 31, 193—(name of bidder), offers —— cents per barrel above the highest field price for oil of equal or lower gravity in Oklahoma and Kansas, and/or in Wyoming, whichever is the higher, as published or offered on any basis of volume measurement by any responsible recognized purchaser for crude oil in quantity not less than 2,000 barrels a day." Delivery of royalty oil will be made in the field to the successful bidder or for his account without cost to the Government. Payments for the royalty oil are to be made through the office of the Supervisor, U. S. Geological Survey, Federal Building, Casper, Wyoming, to the order of the Commissioner of the General Land Office on or before the last day of each calendar month following the calendar month in which delivery is made. The volume of royalty oil will be determined by such rule of volume measurement as may be applicable to production of the Salt Creek field under regulation or order of the Secretary of the Interior; and it is proposed that effective January 1, 1935, the volume of production shall be determined by tank measurement as based on 100 per cent capacity tables and shall be computed in terms of barrels of clean oil of 42 U. S. gallons of 231 cubic inches, in conformity with departmental order of August 4, 1933. Each bidder must submit with his bid a bond in the sum of $1,000 or a certified check payable to the order of the Secretary of the Interior in the sum of $1,000 as a guarantee that he will, if successful, promptly execute a satisfactory contract and furnish a bond in the sum of $200,000, conditioned upon full and complete compliance with the terms of the contract. The Secretary of the Interior may accept the offer of the highest bidder and/or bidders and reserves the right to reject all bids whenever within his judgment the interest of the United States demands. Storage facilities are available on Naval Petroleum Reserve No. 1, Wyoming (Teapot), for approximately 1,500,000 barrels of oil. Information in regard thereto may be obtained from the Secretary of the Navy. Sealed bids are to be submitted to the Secretary, Department of the Interior, Washington, D. C., the envelope to be marked plainly "Bid on Salt Creek royalty oil." No bid received after the time herein fixed for submitting bids will be considered. (Signed) T. A. Walters, Acting Secretary of the Interior. October 31, 1934.

A Lever Safety Valve for *Sure Protection*

THE Fulton Lever Safety Valve can be set to blow at any desired pressure between 10 and 100 pounds. Its action is positive and sure. It will not stick, nor in any way fail to relieve the line of excess pressure in case of need.

FOR low-pressure distribution, between the high-pressure and the low-pressure regulators, it is advisable to have a lever-type Safety valve. In fact such a valve is recommended for any service involving pressures of 5 to 100 pounds, while for lower pressures, dead-weight valves are available.

FULTON Safety Valves are of special design and superior workmanship and have been proved by many years of unfailing service. Correspondence is invited regarding C-F Gas Regulators, Safety Valves and other requirements for gas control. Descriptive leaflets will be mailed on request.

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INTERPRETATIONS

CLUB BLDG. DENVER, COLO.

Styles, C SW NE Section 23-31-34, Bowdoin district, was completed at 825 feet for 2,200,000 feet of gas from sand at 690-780 feet. Gas had a rock pressure of 210 pounds.

Teton County

Ned Cheadle's No. 1 Balsinger, NE SE NW Section 20-27-5w, West Pondera, which ran into water in the Madison, was plugged and abandoned at 2,554 feet. It topped the Madison at 2,522 feet, had a small show of gas at 2,525-30 feet and 150 feet of sulphur water at 2,552-54 feet.

Toole County

The only active operation in Kevin-Sunburst is the Chicago Consolidated Oil Co.'s No. 1 fee, SW NE NW Section 2-34-1w, drilling at 1,362 feet.

UTAH

Mountain Fuel Supply Co.'s No. 2 Murphy, NE NE Section 21-3n-24, Clay Basin, Daggett County, is coring the fourth Dakota at 5,809 feet and showing gas. Longwell Petroleum Co.'s No. 1, SE SW SE Section 35-3n-5e, Chalk Creek, Summitt County, is drilling at 850 (cor.) feet. Escalante Explorations, Inc.'s No. 2 Escalante, NW cor. NE Section 19-43-15, Bloomington Dome, Washington County, is bottomed at 4,105 feet and fishing for sand line, and Jerome L. Andrus, trustee's No. 1, C SE NW Section 6-41-11, Virgon district, is drilling at 385 feet.

NORTH DAKOTA

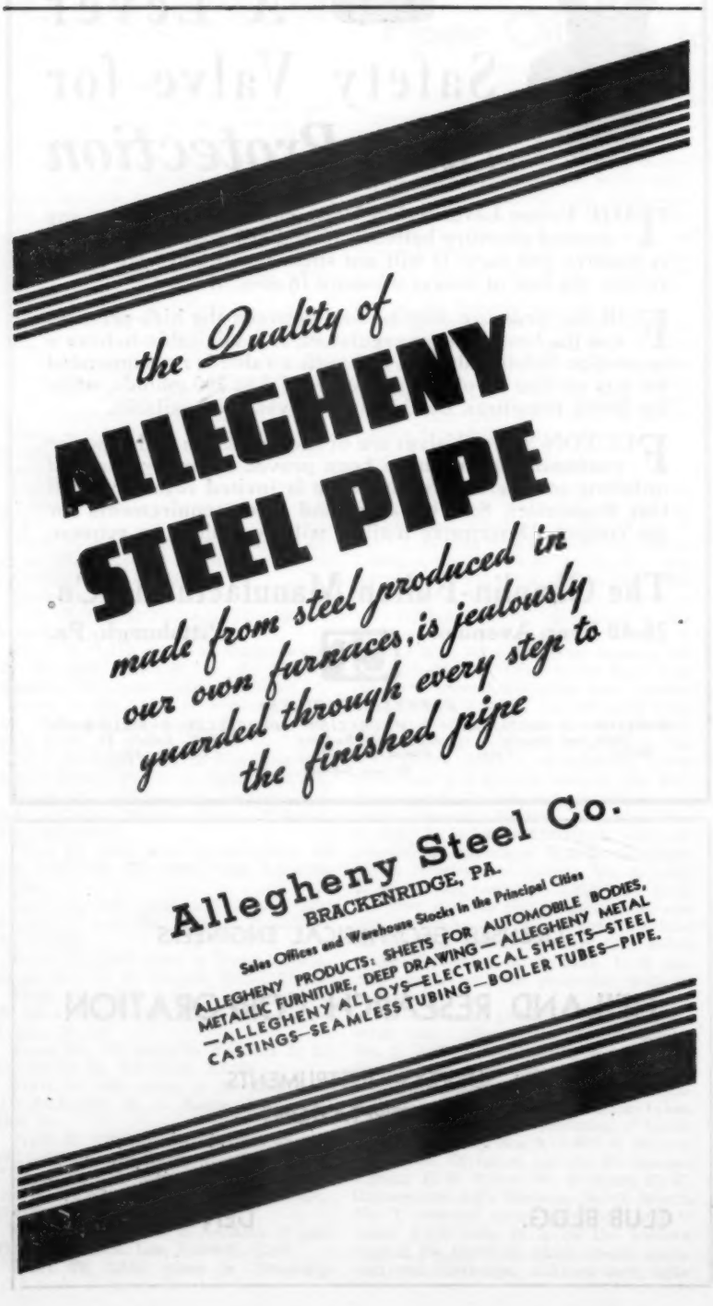
D. J. Carter & Co.'s No. 1, SW cor. Section 26-113-72, Burnstad district, Logan County, is shut down at 2,500 feet.

WASHINGTON

Northwest Oil Research Corp.'s No. 1-A Norco, SW Section 26-22-20, Wenatchee Heights, Chelan County, is running the 8¼-inch to bottom at 1,775 feet to shut over cave. People's Gas & Oil Co.'s No. 1 Donnie Boy, Section 19-17-28, Frenchman Hills, Grant County, is rigged and ready to spud with cable tools.

OREGON

Langwell Valley Oil Co.'s No. 1 Bonanza, Section 19-39-12, Klamath County, landed the 6¼-inch at 3,100 feet for water shutoff and is drilling at 3,200 feet, and the Steiwer Dome Development Co.'s No. 1, SW NW Section 14-9s-3w, Marion County, is drilling below 1,000 feet. Northwest Petroleum Corp.'s No. 1, Section 23-10s-21, Mitchell district, Wheeler County, is drilling below 715 feet.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Canadian Fields

(Continued from Page 76)

same terms at the end of 21 years, and that a royalty provision enacted in 1920 could not override these earlier agreements.

Test in New Area

In a new potential field south and west of the North Turner Valley producing area, derrick is being erected by Phillips Petroleum, Ltd., of Calgary. This company, has no connection with the Phillips Petroleum Co. of Bartlesville, Okla. It is headed by "Red" Phillips, a driller with a lot of experience in the Alberta fields and is being backed by Calgary interests. Location is in LSD 16, Section 16-20-3w5, some distance southwest of Model Oils' No. 1 producer. The latter has a steady crude oil production from the lime, and Red Phillips' No. 1 will test a potential extension of this crude oil area.

Filing to Northeast

Another new area is the territory lying between the North Turner Valley Field and the Sarcee Indian Reserve, on which lease bids were asked recently by the government land office at Calgary. Most of the filing was done by T. W. Renner, representative of a supply house at Calgary. The Renner filings were mostly on the New Valley and Calling Valley structures. J. F. M. Moodie has a derrick up on the Calling Valley structure, and some years ago the New Valley structure was tested to 2,200 feet by New Valley Oil Co.'s No. 1, LSD 4, Section 6-21-2w5. Some smaller areas were filed on by other interests but considerable acreage was left open.

Tests in the Foothills

In the Forest Reserve area west of Olds, Hunter Valley Oil Co.'s No. 1 McLaren, LSD 12, Section 13-31-10w5, is below 4,300 feet.

On the Highwood-Sinclair structure, south of Turner Valley, Canadian Royalties' No. 1 Banner, LSD 6, Section 34-17-3w5, is running casing to 625 feet.

In the old Oil City Field, Waterton Lakes Park, Oil City Royalties' No. 1 Patrick, Section 30-1-30w4, is in a dark lime formation below 2,110 feet.

On the Watson structure west of Lundbreck, Mar Jon Oil Co.'s No. 3, LSD 3, Section 4-10-2w5, is standing cemented. The Maxmont Syndicate, headed by A. W. Hunter, is securing a second string of tools. Raven Oils' No. 1, LSD 1, Section 20-9-2w5, is standing at 1,400 feet.

Saskatchewan Oil Show

In northern Saskatchewan, Trail Blazer Oil & Gas Co.'s No. 1, SW Section 32-44-3w2, about 4 miles southeast of Hudson Bay Junction, has a good show of heavy crude between 590 and 610 feet and is deepening. Early reports of an extensive rush for leases are officially denied by the Saskatchewan department of natural resources.

Big Gasser in Dover

In the Dover Field, Kent County, Ontario, Ajax Oil & Gas Co.'s No. 9, Johnston farm, got the Trenton limestone at 2,850 feet and the main gas horizon between 2,966 and 2,970 feet. It finished at 2,980 feet with a flow around 4,500,000 feet a day, and rock pressure 1,000 pounds. It is one of the largest producers yet drilled in the field, and slightly larger than F. H. Stover & Son's No. 1 on the Jubenville farm, about 600 feet farther east. It will not be shot. F. H. Stover's No. 2, Sam Antaya farm, is drilling 75 feet in the Trenton. Medina Natural Gas Co.'s No. 1 Stirling lease, E. Lot 1, Concession 4, Dover East Township, is rigged. Prairie Oil & Gas Co.'s No. 2, Stephens farm, Lot 2, Front Concession, Dover East, is rigging to deepen from 1,035 feet.

In the De Clute Field, Raleigh Township, Kent County, Union Gas Co.'s No. 25, Clayton farm, SE Lot 17, Concession 15, is below 1,670 feet with two small gas shows. It is being drilled through the lime to around 2,000 feet for geological information. Gas Producers' Syndicate's No. 1, Gilbert Pardo farm, has finished at 1,579 feet with two gas pays aggregating 391,000 feet. It has about 100,000 feet of sweet gas and the remainder sulphur gas.

In the Tilbury Field, Kent County, Ladd & Cabana's No. 1, Gifford farm, S half N half Lot 29, Concession 15, Tilbury East Township, is below 1,185 feet and should get the sand within a few days.

In the Dawn Field, Lambton County, Union Gas Co.'s No. 79, Lot 25, Concession 9, Dawn Township, is below 600 feet.

In the Eden Field, Norfolk County, E. P. Rowe's No. 5, Stilwell farm, has finished with a gas flow of 410,000 feet a day. The outfit is being moved to drill No. 7 in Lot 27, Concession 8, Bayham Township, Elgin County. E. P. Rowe's No. 2 Coyle is finishing. Charles Simpson's No. 1 Gray farm, No. 27, Concession 9, Bayham Township, is below 300 feet. Middleton-Norfolk Gas Co.'s No. 1, Vernon McDonald farm, Lot 5, Concession 3, North Talbot Road, Middleton Township, is running casing to 1,000 feet. Midwal Oil & Gas Co.'s No. 1, Lot 2, Concession 3, North Talbot Road, Middleton Township, is spudding at 180 feet.

In the hilly district in Lambton County, east of Alvinston, a local syndicate is planning to drill for gas. About 30 years ago production sufficient for household use was found in a number of wells which gradually declined. The old wells will be redrilled.

In the south end of Brooke Township, Lambton County, George F. Gregory & Sons of Petrolia are drilling for a Buffalo, N. Y., syndicate on the Ed Mills farm at Little Ireland. At 300 feet a fair show of oil was met and the test is deepening.

A test for shallow oil drilled by Eric Hussey and Eric Rawson on the George Bell farm, Lot 5, Concession 10, Moore Township, Lambton County, got a strong pocket of gas at 335 feet. The gas caught fire, blazing 100 feet in air and damaging the outfit. The tools have been fished and outfit is being rigged again.

In Haldimand County, Domestic Gas Syndicate's No. 5 has finished with a fair gas production and is being connected with the Dominion Natural Gas Co. line. Four previous producers are giving 500,000 feet a day aggregate open flow. No. 6 is being started.

Gulf Coast Fields

(Continued from Page 67)

Danciger Oil & Refining Co.'s No. 1 M. Battles, in Section 135-14s-14e in St. Bernard Parish, is drilling in hard lime below 5,876 feet. This is the only active operation in this parish.

Calcasieu Parish

In the Gillis area, Calcasieu Parish, Union Sulphur Co.'s No. 1 State land, three-quarters of a mile northeast of the company's No. 2 Barbee, discovery well, is drilling in shale and shells below 6,337 feet. It should reach the pay of the discovery within 10 days. The discovery well continues to show improvement in production. It is flowing 470 bbls. of oil per day, with the water content about 20 per cent, a small decline from the last report. It is producing from a total depth of 6,768 feet, with the sand topped at 6,760 feet. Humble Oil & Refining Co. is reported to have taken several small leases, about 2 miles south of No. 2 Barbe in the Triplett subdivision near the English Bayou.

In the Roanoke Field, Shell Petroleum Corp. is building derrick in preparation for its No. 1 Carter, location of which was made during the week. It is a mile north of the company's No. 1 Joseph Kratzer the discovery well. Actual foot measurements are 660 feet north and 330 feet west of the SE cor. NW Section 1. East of the discovery, Shell Petroleum Corp.'s No. 1 Jarnigan is coring in sand and shale below 9,091 feet. This is the deepest test to be drilled in the field. Location is in Section 12-9s-4w.

TECHNICAL QUESTIONS ANSWERED

By Charles K. Francis, Ph. D., Technical Editor

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible.

Inquiries must be signed but only the given initials will be printed. The source of the question is considered to be confidential.

Questions requiring a discussion of patents, the use of intricate formulas, extended computations, or cost estimates cannot be considered.

When the matter is of general interest the reply will be published within a reasonable time.

Producing, Refining, Marketing Districts of the United States

It appears that the petroleum industry of the United States is divided into districts in a different way according to the department interested and it will be a favor if you will explain what these are for producing, refining and marketing.—G. H. B.

The oil producing area of the United States is commonly divided into seven districts. These are: (1) Appalachian; including Eastern Ohio West Virginia, Pennsylvania, New York, Kentucky and Tennessee. (2) Mid-Continent; including Oklahoma, Kansas, Missouri, Arkansas, Northern Louisiana, Mississippi, and Northern, Western, Central and East Texas. (3) Lima-Indiana; including Michigan, Northwestern Ohio and Indiana. (4) Illinois; including Illinois. (5) Gulf Coast; including territory along Gulf of Mexico in Texas and Louisiana. (6) Rocky Mountain; including Montana, Wyoming, Colorado, Utah and New Mexico. (7) California.

The refining division of the United States consists of nine groups of states. These are: (1) California. (2) Rocky Mountain; including Arizona, New Mexico, Utah, Colorado, Wyoming, Montana. (3) Texas. (4) Oklahoma, Kansas, Iowa, Missouri. (5) Louisiana, Arkansas and Mississippi. (6) Gulf Coast of Texas and Louisiana. (7) Michigan, Western Ohio, Indiana, Illinois, Kentucky and Tennessee. (8) Appalachian, Western New York, Pennsylvania and Maryland; West Virginia and Eastern Ohio. (9) East Coast—Georgia, South and North Carolinas, Virginia, Eastern Maryland, Delaware, New Jersey, Eastern New York, Massachusetts and Rhode Island.

The grouping of the marketing territory may follow either that of the producing or refining divisions, such as Bayonne, N. J., for the Atlantic Seaboard and Los Angeles, Calif., for the California district. In the Middle Western district the price for refined products, especially gasoline, is usually based on a Chicago quotation modified by what is known as Group 3 freight rates for tank car shipments to the point of destination. The territory of the Mid-Continent is designated as follows: Group 1—Kansas City, Mo., and Kansas City, Kans. Group 2—Eastern Kansas and Joplin, Mo. Group 3—The refineries of Oklahoma, based on Tulsa. Group 4—Central and Western Kansas, based on Wichita. Additional areas are North Texas, based on Fort Worth; and El Dorado, Ark., and Shreveport, La., based on Shreveport. An extended article on this subject by C. O. Willson appeared in The Oil and Gas Journal, August 31, 1933, page 6, from which the following explanation of Group 3 is taken:

Briefly described, Group 3 is a freight rate term used to designate a refining territory, the freight rates from which to a large consuming section, are the same from all points. Group 3 as commonly used consists of nearly all of Oklahoma to include the 40 operating refineries in Oklahoma. These refineries have exactly the same freight rates on gasoline and other refinery products to a consuming territory which comprises practically all of the Middle West. The refineries also have the same freight rates to the Gulf Coast for export and coastwise movement and to many points in the Southeast and West. Developments which resulted in the establishment of this freight rate grouping which are confined to the Mid-Continent territory constitute a long story starting with the first refineries located in Oklahoma. As the Mid-Continent refining industry expanded many rate cases were initiated by both the railroads and the refiners and the present grouping resulted from the several decisions of the Interstate Commerce Commission.

Compressibility Involved In Air and Water Pressures

Will you please tell me the difference between air pressure and cold water pressure? In other words, what is the difference between 225 pounds air pressure and 225 pounds cold water pressure and why?—C. P. D.

As static pressure there is no difference between 225 pounds air pressure and 225 pounds water pressure. However, if the material is confined, or caused to move, and temperature or pressure changed the results will not be the same.

For ordinary use, water may be assumed to be incompressible. Its Compressibility is only 0.00004 to 0.000051 for one atmosphere, increasing with the increase of temperature. For each foot of pressure pure water will diminish in volume 0.0000015 to 0.0000013. Its density (weight) changes slightly with pressure; at a depth of 1 mile (pressure = 2,285 pounds per square inch) it is increased only three-fourths of 1 per cent. In certain problems in water hammer and surges, the incompressibility of water is important. The volume modulus of elasticity varies with the temperature and the quantity of air in solution. At 50° F. the modulus is approximately 300,000 pounds per square inch.

Air is compressed according to well understood physical laws. At constant temperature the volume varies inversely with the pressure. At constant pressure the volume changes, rises and falls, with increase and decrease of temperature, the change being 1/273 per each degree C., or 1/491 for each degree F., starting from the freezing point of water.

These brief references to the most important facts are sufficient to indicate the difference in behavior of the two substances, air and water, under a pressure of 225 pounds. It is sometimes said that when additional pressure is applied the air or gas behaves like a cushion but water does not give. Water is considered to be a better medium for testing cylinders, boilers and tanks for pressure.

Composition of the Exhaust Gas From Automobile Engine

What quantity of carbon monoxide is present in the exhaust gases from an automobile? Does the percentage vary with speed?—W. G. R.

A recent investigation of the composition of the exhaust from the automobile motor was reported by J. Formanek in Automobiltechnische Zeitschrift 37, 234, 1934, and Brennstoff-Chemie 15, 333, 1934. The article was abstracted in W.O.P.C. Library Bulletin of Abstracts, 9, 156, 1934; from which the following is quoted to answer the question:

"The influence of different factors on the combustion gases in the automobile motor was investigated. The fuels used were: (1) Gasoline, (2) a mixture of 80 volume per cent of gasoline, 19.6 volume per cent of ethyl alcohol, and 0.4 volume per cent of methyl alcohol, and (3) "Dynalkol." Dynalkol is a Czechoslovakian commercial fuel of which 26 per cent is ethanol, 4 per cent is benzol, and 70 per cent is gasoline. The motor was first operated without load at a compression ratio of 1:5.5, at 500 r.p.m.; and loaded, at 500-3,000 r.p.m. The temperature of the exhaust gases was noted and their composition determined. Fuel consumption and power output were watched.

"Combustion was almost the same with the three fuels and was most incomplete when the motor was running slowly, without load. The carbon monoxide then rose to 9—11 per cent. With a load the combustion was more and more nearly complete the higher the speed. An optimum of 1—2 per cent of CO was reached at 2,500 r.p.m. The exhaust gases showed no difference in temperature with the different fuels. The temperature rose from 280-290° at 500 r.p.m. to 820-40° at 3,000 r.p.m. It was concluded that the gasoline-alcohol mixtures gave as high thermal efficiency as the gasoline alone in spite of the smaller energy content of the alcohol. Compression ratios of 1:6 and 1:6.5 were tried with the fuel containing alcohol also. Compression was better at higher compression, in general. The temperature of the exhaust gas when the compression ratio was 1:6 was about 50° higher than at 1:5.5. By the action of the spark plugs upon the oxygen of the air, nitric oxide was formed in the motor, especially when it was running slowly without load. Acetic acid could not be detected in the exhaust gases when gasoline-alcohol fuel was burned."

Practical and Legal Definitions for Gasoline

Is there any difference between a practical and legal definition for gasoline? Would you mind giving a definition or definitions?—S.D.B.

The practical description of gasoline should state that this substance is a volatile liquid consisting of a group of fractions derived from the direct distillation of petroleum and by the decomposition, cracking, of petroleum liquids. These fractions are blended to produce the gasoline as supplied to the market. The most important property is volatility, as measured by the standardized A.S.T.M. distillation test, showing an initial boiling point of about 80° F. to a final boiling point of 450° F. A large part of the gasoline marketed in the United States has a final boiling point of 400° F. and the trade follows the specifications required for U. S. Government Motor gasoline as base or limiting. The American Society for Testing Materials gives a definition which, in the absence of an enactment, may be accepted as legal, as follows:

Petroleum Naphtha—A generic term applied to refined, partly refined or unrefined petroleum products and liquid products of natural gas, not less than 10 per cent of which distills below 347° F. (175° C.) and not less than 95 per cent of which distills below 464° F. (240° C.), when subjected to distillation in accordance with the Standard Method of Test for Distillation of Gasoline, Naphtha, Kerosene and Similar Petroleum Products (A.S.T.M. Designation: D 86) of the American Society for Testing Materials.

Gasoline—A refined petroleum naphtha which by its composition is suitable for use as a carburant in internal combustion engines.

Section 617 of the U. S. Revenue Act of 1934 provides:

"The term 'gasoline' means (a) all products commonly or commercially known or sold as gasoline (including casinghead and natural gasoline), benzol, benzene or naphtha, regardless of their classifications or uses; and (b) any other liquid of a kind prepared, advertised, offered for sale or sold for use as, or used as, a fuel for the propulsion of motor vehicles, motor boats, or airplanes; except that it does not include any of the foregoing (other than products commonly or commercially known or sold as gasoline) sold for use otherwise than as a fuel for the propulsion of motor vehicles, motor boats or airplanes, and otherwise than in the manufacture or production of such fuel, and does not include kerosene, gas oil or fuel oil."

Most of the states have defined gasoline for tax purposes and a few have regulations which are intended to relate to quality.

The recently revised U. S. Internal Revenue Regulation No. 44, defines gasoline as: "All products commonly or commercially known or sold as gasoline, including casinghead and natural gasoline, and including any petroleum product satisfying the volatility requirements (exclusive of vapor pressure) of U. S. Motor gasoline (U. S. Govt. Specifications No. VV-G-101) regardless of their classifications or uses."

NATURAL GAS DEVELOPMENTS

Michigan Said to Have Twenty Years' Supply

MUSKEGON, Mich., Nov. 19.—A prophecy that Michigan's natural gas supply will last for 20 years was made by James B. Balch, chairman of the Michigan Public Utilities Commission in a report at the conference on proposed new natural gas regulations.

Chairman Balch pointed out the present producing fields, exclusive of the Muskegon area which was a combined oil and gas field, comprise 18,400 acres, or only 1.4 per cent of the total Michigan area in which gas showings have been encountered. He said there are 6,000 square miles in the state which "may some day prove to contain gas" in commercial quantities.

The "recoverable reserves before any withdrawals was 29,000,000,000 feet," the report said. "Of this total, 15,000,000,000 feet of reserves is committed to the Saginaw-Bay City requirements, 9,000,000,000 feet to the Muskegon-Big Rapids needs, and 2,000,000,000 feet to the Mount Pleasant-Clare market, leaving only 3,000,000 feet without present commitment.

"Michigan stray sand believed to contain gas extends over 1,900,000 acres but only 18,400 are presently proved. If drilling should ultimately prove 20 per cent of the stray sands to be productive then a 10-year supply would be available. If 35 per cent is ultimately productive, a 20-year supply would be provided."

Mr. Blach said consumer prices for various classes of natural gas should be: Domestic use average, $1.25 per 1,000 feet; house heating, 50 cents; commercial use, $1.40 and industrial use, a starting rate of not less than 40 cents.

NEW A.G.A. PRESIDENT

Percy S. Young, recently elected president of the American Gas Association, is vice president of Public Service Electric & Gas Co., Newark, N. J., and first became associated with public utility work in 1890, when he entered the employ of the Omaha Gas Co., as collector. The Omaha Gas Co. was controlled by the United Gas Improvement Co., and in 1895 Mr. Young was employed as a traveling auditor by that company, with headquarters in Philadelphia.

In 1898 he was made assistant agent of the Jersey City office of United Gas Improvement Co., which was lessee of several of the gas companies in Jersey City, N. J. In 1899 they were merged into the Hudson County Gas Co., of which he became assistant treasurer and later secretary. In 1903, Public Service Corp. of New Jersey was formed and Mr. Young was made comptroller. In 1914, he was made treasurer and in 1917, vice president.

PIPE LINE FINISHED

CHATHAM, Ontario, Nov. 17.—The Southern Ontario Gas Co. has finished its 11½-mile pipe line to deliver gas from F. H. Stover & Son's No. 1 in Dover Township, Kent County, Ontario, to the company's main transmission line farther south. The new line crosses the River Thames, requirements of the federal public works department necessitating the laying of the pipe in a trench 7 feet deep in the river bed.

GAS FOR KYLE, TEXAS

KYLE, Tex., Nov. 19.—Gas was turned on in Kyle Saturday. The Southern Gas Utilities Co. has laid the pipe from the main pipe line, 3 miles east of town, and put in the mains over the entire town.

Operations in Hebron Township Gas Field, Potter County, Pennsylvania

COUDERSPORT, Pa., Nov. 19.—In 1930 purchase price of land in Hebron Township, Potter County, was $4 an acre. In November of 1931 Hungiville Oil & Gas Co. completed No. 1 Booth as an 8,250,000-foot gasser and land values skyrocketed so that Williamsport Natural Gas Co. had to pay a rental of $1,000 an acre on property adjoining the No. 1 Booth. In 1932, 8 wells were drilled, 6 of them finding pay in the Oriskany sand for a total daily initial production of 81,240,000 feet. In 1933, 7 wells out of 15 drilled proved gassers for a total daily initial of 123,371,000 feet, and in 1934, 17 out of 22 drilled added 277,965,000 feet to the initial daily production figures, making a total of 490,826,000 feet for the Hebron Field. In the first week of November 13 wells were drilling and 4 were abandoned above the Oriskany.

Celebrating the third anniversary of the Hebron Field, the Enterprise at Coudersport presents an exhaustive resume of gas activities in the district. More than $5,000,000 has been spent by gas companies in developing 4,500 acres and an additional 300,000 acres are under lease. More than $750,000 has been paid out to landowners in rentals, not including revenue from royalties and bonuses. More than 100 miles of gathering lines are connected with 31 producers and four main lines in Pennsylvania and New York. These main lines are owned by Standard of New Jersey, Columbia Gas & Electric, Benedum-Trees, Belmont Quadrangle Development and Empire Gas & Fuel Co. interests, and form parts of systems covering 10 states. Lycoming Natural Gas Co. was formed in November, 1931, when the Standard, Columbia and Benedum-Trees combined interests in the field.

The Belmont and Empire companies formed an agreement and obtained contracts with larger independents, including Williamsport Natural Gas, G. R. Schrack, Hungiville Oil & Gas, to give them a total of 153,640,000 feet of the open flow in Hebron Field. These companies have a line to Wellsville, N. Y., where connection is made with the Empire's lines to Buffalo and other points in the northwestern section of New York state. The Lycoming has a 47-mile line into Tioga County where connection is made with the New Jersey Standard line which distributes along the Atlantic Coast from New York to Virginia. The Allegany Gas Co. had connections on shallow gas field operations in New York and these have been extended to Hebron to obtain a supply for Elmira, Corning, Mansfield and other New York points. Sylvania-United has a connection at Annin Township, McKean County, for distribution to Oil City and other points in northwestern Pennsylvania.

Hebron Field

Operators in Hebron Field are: Hungiville Oil & Gas Co., Williamsport Oil & Gas Co., Wyoga Oil & Gas Co., Potter Development Co., Hammondsport Natural Gas Corp., Cunningham Natural Gas Co., Sylvania Corp., North Branch Development Co., Electro Geometer Corp., Hanley & Bird, Allegany Gas Co., Penn United Gas Co., Barker & Briton, United Producing Co., Lycoming Producing Co., and interests of the following individuals: J. B. Reed, G. K. Rodgers, C. E. Updegraff, Bayless and others, G. H. Schrack, James Duff, and Stocum, Shoop and others.

Gas Production

The well with the highest elevation above sea level is the Frank Moe, of North Branch Development Co., at 2,405 feet, which reached the Oriskany at 5,316 feet and was abandoned as a duster at 5,440 feet. The lowest was the Schutt well, 1,610 feet above sea level, abandoned at 4,850 feet by G. K. Rodgers. The deepest well producing from the Oriskany is the Empire Lumber well of Potter Development Co., which reached the Oriskany at 6,285 feet and drilled down to 6,437 feet, producing 85,000 feet of gas daily, surface 1,940 feet above sea level. The well producing from the shallowest depth is the Schofield of Lycoming Producing Co., which got the Oriskany at 4,745 feet and is producing 18,000,000 feet daily at 4,755 feet, elevation 1,923 feet above sea level. The largest producer is the No. 1 Willsey, of G. H. Schrack, which came in for an estimated 60,000,000-foot daily flow, reaching the Oriskany at 5,289 feet and drilled down to 5,291 feet, elevation 2,175 feet above sea level. Wells which came in for more than 10,000,000 feet estimated daily open flow are the following:

Williamsport Oil & Gas Co.'s No. 1 Nugent-McGraw, elevation 1,869 feet, Oriskany 4,876 feet, total depth 4,887 feet, flow 16,640,000 feet; Wyoga Oil & Gas Co.'s No. 1 Tassell, elevation 2,034 feet, Oriskany 5,031 feet, total depth 5,037 feet, flow 18,000,000 feet; same company's No. 2 Tassell, elevation 2,211 feet, Oriskany 5,229 feet, total depth 5,232 feet, flow 28,000,000 feet; Hungiville Oil & Gas Co.'s No. 1 Sturdevant, elevation 1,940 feet, Oriskany 4,934 feet, total depth 4,949 feet, flow 12,000,000 feet.

Sylvania Corp.'s No. 1 H. Phelps, elevation 2,160 feet, Oriskany 5,165 feet, total depth 5,175 feet, flow 12,000,000 feet; Potter Development Co.'s No. 2 A. J. Carpenter, elevation 1,817 feet, Oriskany 4,904 feet, total depth 4,910 feet, flow 14,000,000 feet; Sylvania Corp.'s No. 1 Nancy Wilcox, elevation 2,140 feet, Oriskany 5,108 feet, total depth 5,113 feet, flow 14,286,000 feet; Electro Geometer Corp.'s No. 1 Estes, elevation 2,176 feet, Oriskany 5,198 feet, total depth 5,200 feet, flow 15,000,000 feet.

Sylvania Corp.'s No. 1 J. Higley, elevation 2,223 feet, Oriskany 5,287 feet, total depth 5,290 feet, flow 16,000,000 feet; Penn United Gas Co.'s No. 1 U. B. Russell, elevation 2,343 feet, Oriskany 5,281 feet, total depth 5,289 feet, flow 14,000,000 feet; Allegany Gas Co.'s No. 1 Oswayo Chemical Corp., elevation 2,205 feet, Oriskany 5,111 feet, total depth 5,118 feet, flow 18,000,000 feet; United Producing Co.'s No. 2 Phelps, elevation 2,214 feet, Oriskany 5,283 feet, total depth 5,286 feet, flow 13,765,000 feet; Lycoming's No. 1 Schofield, elevation 1,923 feet, Oriskany 4,745 feet, total depth 4,755 feet, flow 18,000,000 feet; North Branch's No. 1 Herron, elevation 2,182 feet, Oriskany 5,128 feet, total depth 5,140 feet, flow 15,000,000 feet; United Producing Co.'s No. 1 Currier, elevation 2,087 feet, Oriskany 5,115 feet, total depth 5,121 feet, flow 28,000,000 feet; same company's No. 1 Willsey, elevation 2,155 feet, Oriskany 5,206 feet, total depth 5,218 feet, flow 25,100,000 feet; Bayless and others' No. 1 Estes, elevation 2,122 feet, Oriskany 5,142 feet, total depth 5,149 feet, flow 27,250,000 feet; same company's No. 2 Estes, elevation 2,165 feet, Oriskany 5,176 feet, total depth 5,188 feet, flow 22,500,000 feet; Allegany Gas Co.'s No. 1 Penn State, elevation 2,325 feet, Oriskany 5,236 feet, total depth 5,240 feet, flow 28,750,000 feet.

Drilling Costs

Drilling costs average around $25,000 a well. Rigging and drilling take three-fifths of this total and the remainder represents cost of fitting and connecting the well. Drilling rate in the harder formations, Tully, Onondaga and Oriskany, is about 1 foot an hour, while the average overall is 100 feet a day. Best pay is usually within 6 feet of the top of the Oriskany. It is the usual practice to hang 7-inch casing from 3 to 5 feet from the bottom of the hole and to pour the cement inside the casing forcing it to the bottom and outside the casing by means of a wooden plug. Christmas tree fittings are 4-inch.

In connection with cementing problems, it is interesting to note the experience of Penn United on the Ben Meaker farm in Tioga County. This well, producing from the Oriskany at 4,197 feet, roared in at a flow ranging from 75,000,000 feet up to 150,000,000 feet as the test drilled itself in.

MICHIGAN LINE COMPLETED

MUSKEGON, Mich., Nov. 19.—American-Michigan Pipe Line Co.'s 52-mile natural gas pipe line from the Austin Township, Mecosta County Pool, to Greater Muskegon has been completed. The 8-inch main to the Muskegon city limits was completed and tested under high pressure, 400 pounds to the square inch, and the 12-inch main within the city limits was also completed. Natural gas was turned into the distribution system. The changeover in Muskegon and Muskegon Heights, affecting about 9,000 consumers, will be made by districts over a period of about three weeks extending to December 1.

RAISE MUNICIPAL RATE

LOS ANGELES, Calif., Nov. 17.—Domestic gas rates at Long Beach were increased 20 per cent and commercial rates 10 per cent by the city council despite the threat of officials of the Apartment House Owners Association to force a referendum on the vote. The gas rate increase is declared by city officials to be necessary to provide funds to balance the municipal budget. The new rate will be effective December 1.

It is expected to provide $180,000 additional during the remainder of this fiscal year.

LONDON PROPOSAL WITHDRAWN

LONDON, Ontario, Nov. 17.—The City Gas Co., subsidiary of the Union Gas Co. of Canada, has withdrawn its offer to supply natural gas to the city of London, following the failure of the municipal council to reach an agreement with the company as to rates. The company proposed to pipe natural gas from the Dawn Field, a distance of 55 miles, and furnish it to consumers at rates considerably lower than those now charged for manufactured gas.

SUSPENSION BRIDGE

HOUSTON, Tex., Nov. 19.—Construction of a suspension bridge across the Rio Grande to carry the gas line supplying Monterrey, Mexico, with natural gas from the Webb County Field, Southwest Texas, is to be started soon.

FIELD PROBLEMS FROM READERS

Edited by Thomas F. Smiley

This department is conducted in order that men connected with the drilling, producing and transporting branches of the petroleum industry may obtain aid in solving problems that confront them in their work. Readers are invited to send questions freely. These questions will be placed in the hands of persons capable of answering them authoritatively, and the answers, based on the best available information, will be published.

Each question should give as much detail as possible, especially if it involves depths of sands, types of sands and operations on adjoining or nearby properties. The source of questions will be considered confidential, and only the initials of the sender will be published. Questions involving patented processes, intricate formulas or estimate of cost cannot be answered. If an immediate answer is important, one will be given by mail when the writer requests it.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or improved old ones.

Not Difficult Task to Straighten Crankshaft of Diesel Engine

The crankshaft of a Diesel engine which I am using in a pipe line pumping station has become bent. I have access to a good machine shop and it seems to me it should not be a very difficult job to straighten this shaft. If you can give me any specific directions I shall appreciate them. What are the common causes of a bent shaft? I know of no misuse or accident to account for the one I have.—E. L. A.

A bent crankshaft can be straightened without any elaborate tools, and straightening is important, for if it is not done the shaft eventually will fail as a result of fatigue and crystallization of the metal. The following directions for the straightening job were obtained from J. B. Harshman, of the Stanolind Pipe Line Co.:

"The straightening of a shaft of any size is a fairly simple matter. A small amount of heat, if applied to a bar of steel, will cause the bar to bend in the opposite direction from the point at which the heat is applied. After cooling, the bar will be found to have drawn back beyond its original position toward the point where the bar was heated. This principle is used in the straightening of the shaft.

"A dial indicating gauge, registering in one-thousandths of an inch and an acetylene welding torch are about the only tools required.

"The procedure is to take the pistons out of the engine to free the shaft of all extraneous weight and remove the main bearing caps to permit checking the shaft with the dial indicator. One or more bottom main bearing shells are removed at the point where the shaft shows the greatest deflection to prevent the bearings from holding any of the deflection out of the shaft. One should then be able to get an accurate check on the shaft with the dial indicator to determine the degree to which the shaft is sprung.

"It is important to move the indicator along the shaft, locate the point of greatest deflection and work from this point. After this point is located the indicator is moved an even number of inches and another reading taken to determine the degree of deflection (in thousandths) per lineal inch along the shaft, which value is divided into the greatest measurement in thousandths. This computation locates the distance (in inches) of the point where the bend starts from the point of greatest deflection.

"Consider as an example a shaft showing an indicator reading of .075 inch maximum deflection and a reading of .0015 inch 'spring' per lineal inch. Seventy-five thousandths divided by one and a half thousandths would show the bend to start 50 inches from this point. The heat must be applied at the point where the bend starts. The shaft is placed with this point upward and the arc of the bend downward. The indicator is again set up where the greatest deflection reading was obtained. As the heat is applied, the shaft bends downward into a still greater arc. This heat should be continued until the indicator shows a downward travel of the shaft of approximately twice the amount of the bend; at which time the shaft is permitted to cool for several hours. Within a short time the shaft will come back to its original position before the heat was applied, then gradually toward the true axis.

"After the shaft has thoroughly cooled it should be barred over and readings taken with the indicator to determine how much of the desired results were obtained in the first heat. Additional heats are made in the same manner until the indicator shows that when the shaft has cooled thoroughly to atmospheric temperature it has reached its true axis and, preferably, a few thousandths beyond.

"The heat places a certain amount of stresses in the shaft at the point where it is applied. Some of these stresses will relieve themselves in operation and permit the shaft to go a few thousandths out of line. It has been found that an allowance approximately 10 per cent of the amount of the bend is sufficient to offset this; that is, the shaft should be drawn this much beyond its axis.

"Bent shafts are found occasionally in Diesel engines which have been in service for years. This condition may be the result of operating with main bearings out of alignment; operation of horizontal engines with loose main bearings; an accident due to the failure of some part; improper heat treatment of shaft at time of manufacture and failure to normalize stresses in the forging before the finished machining operation."

Reducing Gas-Oil Ratios Through Use of Bottom-Hole Chokes

I would like to have information concerning the use of bottom-hole chokes to reduce gas-oil ratios. If there is no information on the subject I would like a discussion or list of methods of reducing gas-oil ratios as used by operators in various fields of Texas and New Mexico.—H. T. H.

This question is so all-inclusive that it is difficult to answer in the space available.

There have been many methods devised to reduce gas-oil ratios and a great deal of discussion as to their efficiency among production men and engineers.

The use of "beans" or "chokes" has been associated with the employment of back pressure on oil wells and these devices may be applied at the well-head or at the bottom of the flow-string or some intermediate point between bottom and top of the well, depending upon the type of bean or choke used.

Usually the beans are installed at the surface and in this position they are easily examined and adjusted. The pressure exerted in the flow column to lift the fluid to the surface is compelled to flow through a restricted orifice at the surface. This creates a weight upon the flowing stream in the well and back pressure against the formation, which tends, in some instances, to reduce the gas-oil ratio.

With the choke placed in the bottom of the tubing, the constriction or bean would be below the weight of the fluid being lifted. A bottom-hole bean usually is built with Venturi streamline proportions and the oil with its dissolved and liquefied gas enters the bottom of the tubing. It gradually rises and flows through the regions of lower pressure, liberating the energy of the gas, and the expansion of this gas tends to aerate the oil column and carry the fluid to the surface. The idea of this application is to cause the energy contained in the gas which entered the well tubing with the oil, to do the work of lifting the oil and not to free the gas from the oil that remains in the sand without forcing it to do its share of work in moving the oil.

A bibliography prepared by the Technical Department of the Tulsa Public Library on gas-oil ratio should be of assistance to you, and you can get it on request.

Tubing Method for Cementing Job Where First Has Failed

I have got to do a cementing job over again in one of my wells, the original job of cementing the casing being a failure. I am told that what is called the tubing method of cementing casing is the best one for doing the job over again. Can you describe this method for me?—A. O. O.

The tubing method of cementing casing may be used where the original cementing job has been a failure, as in your case. It is employed also (drill pipe may be used) for cementing off bottom water; for cementing casing that is fast or frozen, or where a satisfactory casing seat cannot be obtained otherwise; for cementing to regain lost circulation, and for other purposes. The tubing method is described as follows by Walter H. Jeffery in his "Deep Well Drilling":

The hole usually is washed by circulating clear water before cementing. A pressure test usually is taken to determine how much fluid the hole will take. This is necessary in recementing operations. The circulation is closed in between the tubing and casing and pressure is applied. The quantity of fluid the hole will take is calculated in sacks of cement, which determines the quantity of cement needed for a job.

Tubing, usually 2-inch, is inserted with a packer on the bottom to within a few feet of the bottom of the hole or the point where the cement is to be placed. A cast-iron cement retainer is used for this purpose.

A swage or bailer of a size approximating the outside diameter of the retainer should first be run in the casing to a point at which it may be desired to set the retainer to make sure there is nothing in the casing to obstruct it. The retainer is lowered to the desired point and the slips are set by raising the tubing a few inches and turning it on full clockwise turn; the retainer then is set by pulling up the tubing 6 to 10 inches, until the slips take hold. Before proceeding further it is advisable to fill the casing with water and, if there should be a leak past the retainer, it usually can be stopped by taking a strain on the tubing.

The cement then is pumped into the tubing under pressure of 1,000 to 3,000 pounds per square inch and it passes through the retainer and up around the casing, being prevented from backing up into the tubing by a back pressure valve in the bottom of the retainer. The packing head on the casing should be kept tight and not allowed to leak. The pressure is gradually released to 500 to 600 pounds per square inch. A strain should be maintained on the tubing to take up any elongation set up through frictional heat caused by the passage of cement, which might release the hold of the slips. After all of the cement has been put in, the tubing is turned to the right, backing off the left-hand thread nipple which connects tubing with retainer, and water is circulated for several hours to clean residual cement from the tubing and the top of the retainer.

After the cement has set the cast-iron retainer may be drilled out.

Why Was It Called That?

AXLE

The axle, which forms a vital part of much oil-field machinery, gets its name from the Middle English "axel" in "axeltre" (from the Icelandic "oxultre"). Which brings to mind the colored pastor's sermon on "Is There a Hell?" "Bredren," he said, "de Lawd made de world round, like a ball. He made two axles foh it to go round on, one at de nawth pole and one at de south pole. And de Lawd put a lot ob oil and grease in de center ob de world to keep de axles well lubricated. ["Amens" from the congregation.] And den a lot ob sinners dig wells in America, in Mexico, in Russia and in Persia and steal de Lawd's oil and grease. And dem axles is gonna git hot. And den dat will be hell, bredren, dat will be hell."

Bureau of Mines Statistics for Month of September 1934

SUPPLY AND DEMAND OF ALL OILS

(Thousands of barrels of 42 gallons)

NEW SUPPLY:	Sept., 1934	Aug., 1934	Sept., 1933	Jan.-Sept., 1934	Jan.-Sept., 1933
Domestic production:					
Crude petroleum	75,810	79,058	75,321	685,096	687,456
Daily average	2,527	2,550	2,611	2,510	2,518
Natural gasoline	3,046	3,031	2,807	26,531	24,843
Benzol*	109	115	144	1,251	1,003
Total production	78,965	82,204	81,272	712,878	713,302
Daily average	2,632	2,652	2,709	2,611	2,613
Imports:					
Crude petroleum	†2,490	†2,527	2,069	25,385	25,415
Refined products	1,357	‡1,163	774	11,157	10,752
Total new supply, all oils	82,812	‡85,894	84,115	749,420	749,469
Daily average	2,760	2,771	2,804	2,745	2,745
Increase in stocks, all oils	§2,552	§3,614	66	§15,046	28,417
DEMAND:					
Total demand	85,364	‡89,508	84,049	764,466	721,052
Daily average	2,845	2,887	2,802	2,800	2,641
Exports:					
Crude petroleum	4,068	3,696	3,182	30,734	26,755
Refined products	5,783	5,944	5,005	54,991	51,157
Domestic demand:					
Motor fuel	34,984	38,933	34,580	303,476	285,097
Kerosene	3,451	2,753	3,376	30,884	27,122
Gas oil and fuel oil	24,483	‡24,020	25,684	241,050	227,525
Lubricants	1,387	1,498	1,431	13,922	12,472
Wax	56	52	112	659	909
Coke	487	551	855	5,723	6,886
Asphalt	1,482	1,745	1,199	9,933	9,003
Road oil	966	1,518	825	6,762	4,165
Still gas (production)	3,829	4,234	3,989	33,164	34,199
Miscellaneous	173	168	105	1,362	1,122
Losses and crude used as fuel	4,215	4,395	3,706	31,806	34,640
Total domestic demand	75,513	‡79,868	75,862	678,741	643,140
Daily average	2,517	2,576	2,529	2,486	2,356
STOCKS:					
Crude petroleum	348,937	350,838	359,904	348,937	359,904
Natural gasoline	4,611	4,790	3,545	4,611	3,545
Refined products	233,619	234,091	257,162	233,619	257,162
Total, all oils	587,167	589,719	620,611	587,167	620,611
Days' supply	206	204	221	210	235

*From coal division. †Receipts of foreign crude as reported to Bureau of Mines. ‡Revised due to inclusion of fuel oil imported in bond for manufacture and export. These imports, first reported in July, 1934, by the Bureau of Foreign and Domestic Commerce, have been as follows (barrels): July, 320,000; August, 129,000; September, 333,000. §Decrease.

COMPARATIVE ANALYSES

(Thousands of barrels of 42 gallons)

	Sept., 1934 Total	Sept., 1934 Dly. av.	Aug., 1934 Total	Aug., 1934 Dly. av.	Jan.-Sept., 1934	Jan.-Sept., 1933
CRUDE PETROLEUM:						
Runs to stills	73,389	2,446	79,698	2,571	668,563	646,892
MOTOR FUEL:						
Production	34,956	1,166	38,124	1,230	315,573	306,512
Imports	.....	.....	.....	.....	.....	11
Exports*	1,772	59	2,169	70	18,850	21,995
Stocks:						
Gasoline	47,931	.....	49,552	.....	47,931	50,196
Natural gasoline	4,611	.....	4,790	.....	4,611	3,545
Domestic demand	34,984	1,166	38,933	1,256	303,476	285,097
KEROSENE:						
Production	4,181	139	4,306	139	39,188	36,390
Imports	.....	.....	.....	.....	.....	.....
Exports	803	27	983	32	7,366	6,099
Stocks	7,495	.....	7,568	.....	7,495	8,502
Domestic demand	3,451	115	2,753	89	30,884	27,122
GAS OIL AND FUEL OIL:						
Production	27,279	909	†28,243	911	244,129	230,612
Transfers‡	579	13	517	17	5,902	6,111
Imports:						
Bonded warehouses	593	20	492	16	7,234	5,100
For domestic use	417	13	536	17	2,842	5,466
Exports	2,401	80	1,978	64	20,943	14,641
Stocks	120,518	.....	118,734	.....	120,518	135,876
Domestic demand	24,483	816	†24,020	775	241,050	227,525
Railroad (Class I)§	(¶)	(¶)	3,695	119	‖28,960	‖26,062
Pub. util. pow. plants**	840	28	903	29	7,720	7,117
Other	23,643	788	19,417	626	204,370	194,346
Bunker oil	2,261	75	2,562	83	22,180	25,251
LUBRICANTS:						
Production	2,106	70	2,152	69	19,792	17,073
Imports	.....	.....	.....	.....	.....	1
Exports	595	20	595	19	5,935	6,117
Stocks	6,965	.....	6,841	.....	6,965	7,179
Domestic demand	1,387	46	1,498	48	13,922	12,472
WAX (thous. of pounds):						
Production	33,880	1,129	33,880	1,093	352,240	336,840
Imports:						
Bonded warehouses	44	1	55	1	3,542	1,344
For domestic use	2,404	80	826	27	27,436	22,080
Exports	21,255	709	15,299	494	148,171	188,996
Stocks	118,991	.....	119,702	.....	118,991	80,636
Domestic demand	15,784	526	14,897	481	184,889	254,567
COKE (short tons):						
Production	110,000	3,667	101,000	3,258	988,200	1,194,400
Stocks	484,200	.....	478,000	.....	484,200	987,000
ASPHALT (short tons):						
Production	262,700	8,757	319,800	10,316	2,040,100	1,744,400
Imports (natural)	700	23	700	23	15,000	13,500
Stocks	314,500	.....	339,000	.....	314,500	253,400

*Includes benzol, 19,768 bbls. in September, 1934. †Revised. ‡Net transfers in California. §Interstate Commerce Commission. ¶Not available. ‖January-August. **U. S. Geol. Survey.

SHIPMENTS FROM CALIFORNIA TO EASTERN PORTS IN THE UNITED STATES*

(Thousands of barrels of 42 gallons)

	Sept., 1934	Aug., 1934	Sept., 1933	Jan.-Sept., 1934	Jan.-Sept., 1933
Gasoline	875	730	1,130	6,141	8,736
Natural gasoline	.....	.....	.....	.....	31
Kerosene	90	75	132	1,091	1,120
Gas oil and Diesel oil	148	157	161	1,618	1,563
Fuel oil	605	1,070	190	10,567	1,058
Lubricants	.....	10	10	48	40
Asphalt	.....	1	.....	74	1
Miscellaneous	3	2	1	53	157
Total	1,721	2,045	1,674	19,532	12,756

*Compiled by E. T. Knudsen of the San Francisco office of the Bureau of Mines.

PRODUCTION OF CRUDE PETROLEUM BY STATES AND PRINCIPAL FIELDS

(Thousands of barrels of 42 gallons)

	Sept., 1934 Total	Sept., 1934 Dly. av.	Aug., 1934 Total	Aug., 1934 Dly. av.	Jan.-Sept., 1934	Jan.-Sept., 1933*
Arkansas	894	30	946	31	8,404	8,818
California:						
Huntington Beach	1,187	40	1,373	44	11,448	8,562
Kettleman Hills	1,822	61	1,987	64	15,941	16,644
Long Beach	1,804	60	1,948	63	17,480	18,984
Santa Fe Springs	1,125	37	1,241	40	11,227	14,368
Rest of State	8,115	270	8,743	282	75,781	70,417
Total California	14,053	468	15,292	493	131,877	128,975
Colorado	110	4	116	4	858	693
Illinois	378	13	402	13	3,474	3,069
Indiana	68	2	77	2	626	519
Kansas	3,716	124	4,037	130	34,956	31,523
Kentucky	444	15	447	14	3,516	3,410
Louisiana:						
Gulf Coast	2,172	73	2,288	74	16,947	11,050
Rest of State	705	23	750	24	6,855	7,616
Total Louisiana	2,877	96	3,038	98	23,802	18,666
Michigan	912	30	938	30	8,132	5,193
Montana	377	12	413	13	2,579	1,640
New Mexico	1,448	48	1,533	49	12,532	10,292
New York	319	11	333	11	2,779	2,312
Ohio:						
Central and Eastern	259	8	285	9	2,427	2,384
Northwestern	77	3	85	3	741	777
Total Ohio	336	11	370	12	3,168	3,161
Oklahoma:						
Oklahoma City	4,610	154	4,821	156	48,480	50,688
Seminole	2,901	97	3,327	107	29,088	31,624
Rest of State	6,350	211	6,838	221	59,732	54,294
Total Oklahoma	13,861	462	14,986	484	137,300	136,606
Pennsylvania	1,184	40	1,273	41	10,829	9,276
Tennessee	1	.....	1	.....	8	3
Texas:						
Gulf Coast	5,237	174	5,416	175	45,052	45,610
West Texas	4,537	151	4,578	148	37,761	43,544
East Texas	15,706	524	15,065	486	138,992	161,093
Panhandle	1,736	58	1,804	58	15,047	12,804
Rest of State	6,168	206	6,346	205	51,606	49,043
Total Texas	33,384	1,113	33,209	1,072	288,458	312,094
West Virginia	337	11	367	12	3,061	2,781
Wyoming:						
Salt Creek	511	17	556	18	4,833	5,351
Rest of State	600	20	724	23	4,904	3,151
Total Wyoming	1,111	37	1,280	41	9,737	8,502
Total United States	75,810	2,527	79,058	2,550	685,096	687,456

*Final figures, includes Alaska, Mississippi, Missouri and Utah.

PRODUCTION OF CRUDE PETROLEUM BY DISTRICTS

(Thousands of barrels of 42 gallons)

	Sept., 1934 Total	Sept., 1934 Dly. av.	Aug., 1934 Total	Aug., 1934 Dly. av.	Jan.-Sept., 1934	Jan.-Sept., 1933
Appalachian:						
Pennsylvania Grade	1,965	66	2,110	68	17,850	15,536
Other (inc. Kentucky)	579	19	596	19	4,770	4,630
Lima-N. B. Ind.-Mich.	989	33	1,023	33	8,873	5,981
Ill.-S. W. Ind.	446	15	479	15	4,100	3,577
Mid-Continent:						
North La. and Ark.	1,599	53	1,696	55	15,259	16,340
W. Texas-S. E. N. Mex.	5,953	198	6,078	196	49,987	53,570
East Texas	15,706	524	15,065	486	138,992	161,093
Other (Okla., Kans., N. Tex., etc.)	25,481	850	27,173	877	238,909	229,983
Gulf Coast	7,409	247	7,704	249	60,999	56,660
Rocky Mountain	1,630	54	1,842	59	13,480	11,111
California	14,053	468	15,292	493	131,877	128,975
Total	75,810	2,527	79,058	2,550	685,096	687,456

STOCKS OF CRUDE PETROLEUM

(Thousands of barrels of 42 gallons)

	Sept. 30, 1934	Aug. 31, 1934	Sept. 30, 1933
At refineries by location:			
East Coast: Domestic	11,587	11,885	9,530
Foreign	2,278	2,180	2,573
Appalachian	1,331	1,403	2,073
Indiana, Illinois, Kentucky, Michigan	4,063	4,047	3,830
Oklahoma, Kansas, and Missouri	5,750	5,676	6,122
Texas: Inland	2,053	1,962	2,802
Gulf Coast: Domestic	10,461	9,731	11,746
Foreign	283	304	3
Louisiana Gulf Coast: Domestic	3,543	3,612	3,433
Foreign	410	475	610
Arkansas and Inland Louisiana	584	612	1,074
Rocky Mountain	13,402	13,291	12,655
California	9,196	9,036	8,094
Total	64,971	64,214	64,546
At refineries by origin:			
Pennsylvania Grade	1,191	1,288	1,945
Other Appalachian (inc. Kentucky)	552	583	475
Lima-Northeast Indiana-Michigan	427	307	330
Illinois-Southwest Indiana	119	130	117
North Louisiana and Arkansas	2,255	2,192	2,588
West Texas and Southeast New Mexico	3,817	4,082	3,876
East Texas	8,758	8,055	8,590
Oklahoma, Kansas, North Texas, etc.	15,738	15,530	17,594
Gulf Coast	6,578	6,792	5,117
Rocky Mountain	13,369	13,260	12,634
California	9,196	9,036	9,094
Foreign	2,971	2,959	3,186
Total	64,971	64,214	64,546
Pipe line and tank farm:			
Pennsylvania Grade	3,751	3,791	3,769
Other Appalachian (inc. Kentucky)	539	669	702
Lima-Northeast Indiana-Michigan	1,056	1,197	1,034
Illinois-Southwest Indiana	11,378	11,326	10,746
North Louisiana and Arkansas	8,190	8,265	9,528
West Texas and Southeast New Mexico	26,040	25,168	29,409
East Texas	29,657	30,976	41,212
Oklahoma, Kansas, North Texas, etc.	142,585	144,260	135,350
Gulf Coast	13,393	12,084	12,590
Rocky Mountain	14,857	14,970	14,911
California	25,895	25,624	26,982
Total	275,300	278,330	286,333
Lease (producers') stocks	8,666	8,294	9,025
Total refinable crude in United States	348,937	350,838	359,904

RECEIPTS OF FOREIGN CRUDE PETROLEUM

(Thousands of barrels of 42 gallons)

	Sept., 1934	Aug., 1934
Atlantic Seaboard:		
Venezuela	1,965	2,084
Colombia	....	....
Mexico	332	375
Trinidad	....	..
Gulf Coast:		
Mexico	133	....
Venezuela	....	68
Total	2,490	2,527

STOCKS OF CRUDE PETROLEUM BY STATES AND BY LOCATION

(Thousands of barrels of 42 gallons)

	September 30, 1934				August 31, 1934			
	Refinery	Tank farm and pipe line	Lease	Total	Refinery	Tank farm and pipe line	Lease	Total
Arkansas	514	2,999	310	3,823	537	3,137	320	3,994
California	9,196	25,805	1,671	36,672	9,036	25,624	1,619	36,279
Colorado	269	90	20	379	273	87	20	380
Georgia*	584	.....	.....	584	543	.....	.....	543
Illinois	1,249	10,657	110	12,016	1,339	10,754	100	12,193
Indiana	1,163	1,744	8	2,915	1,151	1,859	8	3,018
Kansas	1,724	12,064	410	14,198	1,673	12,271	400	14,344
Kentucky†	507	455	40	1,002	491	410	50	951
Louisiana‡	4,023	7,685	330	12,038	4,162	7,846	250	12,258
Maryland	1,351	.....	.....	1,351	1,246	.....	.....	1,246
Massachusetts§	1,137	.....	.....	1,137	1,195	.....	.....	1,195
Michigan	160	615	85	860	175	710	85	970
Missouri¶	184	3,552	.....	3,736	183	3,599	.....	3,782
Montana	270	589	75	934	248	518	80	846
New Jersey	5,343	511	.....	5,854	5,595	374	.....	5,969
New Mexico	8	346	200	554	6	325	180	511
New York	1,144	132	17	1,293	1,370	111	17	1,498
Ohio	1,161	7,206	80	8,447	1,068	7,269	85	8,422
Oklahoma	3,872	82,391	1,680	87,943	3,820	83,275	1,680	88,775
Pennsylvania	5,405	1,915	100	7,420	5,285	2,011	100	7,396
Texas	12,796	100,527	3,000	116,323	11,997	101,938	2,800	116,735
Utah	290	.....	.....	290	284	.....	.....	284
West Virginia	55	1,857	130	2,042	57	1,870	120	2,047
Wyoming‖	12,566	14,160	400	27,126	12,480	14,342	380	27,202
Total U. S.	64,971	275,300	8,666	348,937	64,214	278,330	8,294	350,838

*Includes South Carolina and Virginia. †Includes Tennessee. ‡Includes Alabama. §Includes Rhode Island. ¶Includes Iowa. ‖Includes Nebraska and South Dakota.

NUMBER OF WELLS COMPLETED IN THE UNITED STATES*

	Sept., 1934	Aug., 1934	Sept., 1933	Jan.-Sept., 1934	Jan.-Sept., 1933
Oil	1,047	1,216	967	9,247	5,143
Gas	134	134	96	937	642
Dry	368	387	270	3,063	2,472
Total	1,549	1,737	1,333	13,247	8,257

*From The Oil and Gas Journal and California office of American Petroleum Institute.

RECORD OF WELLS FOR IMPORTANT FLUSH FIELDS, SEPTEMBER, 1934*

	Completions: Oil	Gas	Dry	Total initial prod. (bbls.)	Aver. initial prod. (bbls.)	Drilling Sept. 30
Texas	557	25	201	598,300	1,070	988
East Texas	313	...	13	532,100	1,700	156
Gulf Coast	61	6	34	27,400	450	149
Conroe	8	1	1	10,000	1,250	6
Greta	9	1	...	2,000	220	7
West Texas	47	...	14	14,600	310	179
California	45	...	25	57,700	1,280	215
Kettleman Hills	4	...	...	22,300	5,580	25
Long Beach	5	...	3	900	180	20
Huntington Beach	2	...	2	5,500	2,750	9
Oklahoma	72	3	26	51,200	710	382
Oklahoma City	5	...	...	5,300	1,060	21
Pottawatomie and Seminole Counties	12	...	4	8,300	690	65
New Mexico	20	1	...	67,200	3,360	58
Lea County (Hobbs)	17	...	...	67,100	3,950	17
Other states	353	105	116	64,400	180	1,197
Total United States	1,047	134	368	838,800	800	2,840

*From The Oil and Gas Journal and California office of American Petroleum Institute.

RUNS TO STILLS AND OUTPUT OF REFINERIES, SEPTEMBER, 1934

(Thousands of barrels of 42 gallons)

INPUT—	Crude run: Domestic	Foreign	Total	Unfin. rerun (net): Crude gaso.	Other	Natural gasoline
East Coast	11,262	2,267	13,529	124	—21	92
Appalachian	3,019	.....	3,019	5	328	20
Ind., Ill., Ky., etc.	9,871	.....	9,871	146	—8	213
Okla., Kans., Mo.	7,465	.....	7,465	108	290	574
Texas Inland	6,119	.....	6,119	—56	—15	289
Texas Gulf	14,614	86	14,700	189	—36	251
Louisiana Gulf	3,070	119	3,189	15	—64	42
Ark. and La. Inland	1,537	.....	1,537	1	—3	42
Rocky Mountain	1,376	.....	1,376	23	8	65
California	12,584	.....	12,584	48	—239	*822
Total	70,917	2,472	73,389	603	240	2,410

OUTPUT—	Gasoline	Kerosene	Gas oil and distillate fuels	Residual fuel oils	Lubricants	Wax (thousands of pounds)
East Coast	5,421	761	1,598	3,604	598	15,686
Appalachian	1,547	262	194	473	453	5,880
Ind., Ill., Ky., etc.	5,732	357	990	1,382	194	2,340
Okla., Kans., Mo.	4,554	436	656	1,612	225	3,080
Texas Inland	3,064	420	552	1,784	17	.....
Texas Gulf	6,798	1,022	1,805	3,676	435	5,320
Louisiana Gulf	1,094	373	520	900	32	1,400
Ark. and La. Inland	747	79	93	424	14	.....
Rocky Mountain	753	40	62	277	16	280
California	4,732	381	1,828	5,228	122	.....
Total	†34,442	4,181	8,298	19,360	2,106	33,880

OUTPUT (Cont'd)—	Coke (tons)	Asphalt (tons)	Road oils	Still gas	Miscellaneous	Shortage
East Coast	10,800	124,200	36	732	72	109
Appalachian	2,200	10,900	1	210	20	120
Ind., Ill., Ky., etc.	48,400	39,600	171	808	29	91
Okla., Kans., Mo.	15,000	10,900	115	373	17	253
Texas Inland	4,200	.....	49	124	11	295
Texas Gulf	21,400	12,900	31	953	11	176
Louisiana Gulf	.....	16,500	1	139	.....	27
Ark. and La. Inland	200	10,400	37	36	5	84
Rocky Mountain	7,800	3,300	150	74	—1	43
California	.....	34,000	298	380	‡17	42
Total	110,000	262,700	889	3,829	181	1,240

*Includes 81,000 bbls. run through pipe lines. †Includes 361,000 bbls. special naphthas. ‡Includes 5,000 bbls. liquefied petroleum gas made from natural gasoline.

INDICATED DOMESTIC DEMAND FOR CRUDE PETROLEUM

(Thousands of barrels of 42 gallons)

Domestic petroleum by fields of origin:	Sept., 1934: Total	Dly. av.	Aug., 1934: Total	Dly. av.	Jan.-Sept., 1934	Jan.-Sept., 1933
Appalachian:						
Pennsylvania Grade	2,097	70	2,047	66	18,506	16,781
Other (inc. Kentucky)	700	23	650	21	5,095	4,971
Lima-N. E. Ind.-Mich.	1,010	34	1,109	36	9,152	5,883
Ill.-S. W. Ind.	395	13	372	12	3,789	4,033
Mid-Continent:						
N. La. and Ark.	1,621	54	1,815	59	16,771	17,447
W. Texas- S. E. N. Mex.	5,276	176	5,813	188	53,035	56,801
East Texas	17,232	574	17,673	570	147,388	
Other (Okla., Kans., N. Tex., etc.)	26,868	896	29,366	947	234,845	359,933
Gulf Coast	7,245	241	7,350	237	58,009	55,706
Rocky Mountain	1,619	54	1,925	62	12,706	11,324
California	13,396	447	14,331	462	125,743	124,994
Total demand	77,459	2,582	82,451	2,660	685,039	657,873
Exports	4,068	136	3,696	119	30,734	26,755
Domestic demand	73,391	2,446	78,755	2,541	654,305	631,118
Foreign petroleum	2,478	83	2,993	96	25,469	28,660
Total domestic demand.	75,869	2,529	81,748	2,637	679,774	659,778

CRACKED OPERATIONS

Fresh cracking stock charged to stills, crude (bbls.)	4,029,000
Other oils (bbls.)	36,166,000
Gasoline produced by cracking (bbls.)	15,492,000
Fuel oil produced by cracking (bbls.)	15,517,000

SHIPMENTS OF MOTOR FUEL BY PIPE LINES

(Thousands of barrels of 42 gallons)

	Sept., 1934	Aug., 1934	Sept., 1933	Jan.-Sept., 1934	Jan.-Sept., 1933
Motor fuel turned into lines	4,143	4,210	3,310	33,617	27,703
Motor fuel delivered from lines	4,047	4,221	3,321	33,510	27,731
Shortage	4	19	17	80	58
Stocks in lines and working tanks end of month	1,342	1,250	1,112	1,342	1,112

STOCKS HELD BY REFINING COMPANIES, SEPTEMBER 30, 1934

(Thousands of barrels of 42 gallons)

	Gasoline: At refineries	Bulk and pipe lines	Total	Kerosene	Gas oil and distillate fuels	Residual fuel oils
East Coast	4,655	9,287	13,942	1,981	6,376	8,344
Appalachian	823	1,272	2,095	182	289	367
Ind., Ill., Ky., etc.	3,613	3,546	7,159	700	2,925	3,110
Okla., Kans., Mo.	2,913	1,483	4,396	681	1,206	2,343
Texas Inland	1,419	94	1,513	196	364	1,586
Texas Gulf	4,053	616	4,669	1,900	5,195	6,783
Louisiana Gulf	828	623	1,451	361	2,017	2,401
Ark. and La. Inland	239	25	264	28	167	940
Rocky Mountain	593	.....	593	117	161	359
California	9,726	2,122	11,849	1,349	5,595	69,490
Total	28,862	19,069	47,931	7,495	24,295	96,223

	Lubricants	Wax (thous. of pounds): Crude scale	Refined	Total	(tons)
East Coast	2,191	20,408	31,853	52,261	30,800
Appalachian	1,004	14,883	2,415	17,298	8,100
Ind., Ill., Ky., etc.	519	13,779	2,044	15,822	49,300
Okla., Kans., Mo.	460	3,752	806	4,558	45,700
Texas Inland	100	.....	85	85	57,600
Texas Gulf	1,634	2,678	15,570	18,248	98,600
Louisiana Gulf	95	802	1,478	2,280	400
Ark. and La. Inland	16	.....	.....	.....	100
Rocky Mountain	89	7,125	1,314	8,439	85,900
California	857	.....	.....	.....	107,700
Total	6,965	63,426	55,565	118,991	484,200

	Asphalt (tons)	Road oil	Miscellaneous	Unfin. oils: Crude gaso.	Other	Natural gasoline
East Coast	104,400	47	34	857	7,884	283
Appalachian	7,700	14	43	302	2,019	1
Ind., Ill., Ky., etc.	66,100	172	35	873	5,782	55
Okla., Kans., Mo.	14,400	148	22	483	4,956	83
Texas Inland	.....	32	11	227	1,074	16
Texas Gulf	9,100	39	29	1,189	10,407	116
Louisiana Gulf	24,100	11	.....	201	1,218	9
Ark. and La. Inland	39,100	16	2	49	262	4
Rocky Mountain	4,300	72	8	121	1,812	8
California	45,300	165	39	840	4,639	2,690
Total	314,500	716	223	5,142	40,053	3,265

Grand total stocks refined products, 233,619,000 bbls.

GASOLINE PRODUCTION BY THE VARIOUS METHODS, SEPTEMBER, 1934

(Thousands of barrels of 42 gallons)

	Straightrun: Total	Per cent (*)	Per cent (†)	Cracked: Total	Per cent (*)	Per cent (†)	Nat. gaso.: Total	Per cent (†)	Gasoline: Total	Per cent (*)
East Coast	2,509	18.6	46.3	2,820	20.8	52.0	92	1.7	5,421	39.4
Appalachian	694	23.0	44.9	833	27.6	53.8	20	1.3	1,547	50.6
Ind., Ill., etc.	2,299	23.3	40.1	3,220	32.6	56.2	213	3.7	5,732	55.9
Okla., Kans., Mo.	2,049	27.4	45.0	1,931	25.9	42.4	574	12.6	4,554	52.3
Texas Inland	2,019	33.0	65.9	756	12.4	24.7	289	9.4	3,064	45.4
Texas Gulf	3,183	21.6	46.8	3,364	22.9	49.5	251	3.7	6,798	44.5
Louisiana Gulf	627	19.7	57.3	425	13.3	38.9	42	3.8	1,094	33.0
Ark. and La. Inland	354	23.0	47.4	351	22.9	47.0	42	5.6	747	45.9
Rocky Mountain	366	26.6	48.6	322	23.4	42.8	65	8.6	753	50.0
California	2,445	19.4	51.7	1,470	11.7	31.1	817	17.2	4,732	31.1
Total	16,545	22.6	48.0	15,492	21.1	45.0	2,405	7.0	34,442	43.7

*Per cent of crude run. †Per cent of total gasoline output.

California Fields

(Continued from Page 71)

doned well on the Gray property and is getting ready to deepen it from 4,156 feet. The second drilling project expected to get under way is F. A. Speik's No. 1 Johnson, the rig for which is now in course of construction.

Bandini Petroleum, subsidiary of Wilshire Oil Co., finished a small pumper in the Santa Fe Springs Field this week but it is showing a rather high cut. No. 20 Off, the well in question, was bottomed in the Meyer zone at 4,694 feet and finished pumping 76 bbls. of 33.4 gravity oil per day. Standard Oil Co. has decided to call it quits as far as its deep test in the Montebello Field is concerned and the hole is being plugged back to the upper zone. This well, No. 75 Baldwin, was carried to 8,321 feet but failed to encounter the Cruz zone, topped at approximately 7,000 feet. Universal Consolidated is building a new rig for another test in the extreme eastern end of the field. This company discovered the Cruz zone but is not satisfied with the results to date. It has been decided to move further east.

PERSONAL PARAGRAPHS

S. MYRON ZANDNER, of Los Angeles, Calif., and PAT ADAMS, of Calgary, recently inspected the Twin River well, south of Lethbridge, Alberta.

* * *

ISAAC SHULER, president of the Strange Oil & Gas Company, and veteran of 50 years of oil activity throughout the country, is seriously ill in Detroit, Mich.

* * *

C. W. TEATER, prominent independent operator in Michigan, who was seriously injured in an automobile accident several weeks ago, is reported much improved.

* * *

MR. and MRS. FRANK STEVENS, who have been in southern Saskatchewan in connection with drilling operations southwest of Regina, have returned to Wainwright, Alberta.

* * *

MR. and MRS. JOHN BRAYBROOK, who have been spending three months in Petrolia, Ontario, and vicinity, left last week for New York en route to Colombia, where Mr. Braybrook is on the staff of the Tropical Oil Company.

* * *

CAMPBELL M. HUNTER, O.B.E., of London, England, recently inspected the operations near Olds, Alberta, of the Hunter Valley Oil Company, of which he is president. He will spend a short time in Calgary before returning to England.

* * *

C. F. WILEY, of the American Steel & Wire Company, Chicago, was in Tulsa last week.

* * *

C. ENGELBRECHT, of the Socony-Vacuum Oil Company, Inc., Hamburg, Germany, recently arrived in New York.

* * *

A. M. HAY, engineer of the Egyptian government's refinery, has left London, England, at the conclusion of his vacation.

* * *

J. C. MILLAR, vice president of the British American Oil Company, was in Tulsa en route to his home in Toronto, Canada.

* * *

R. A. JULIAN, shovel operator for Standard Oil Company of Venezuela, is spending a vacation of 10 weeks in the United States.

* * *

EDWARD R. MEADE, of the West India Oil Company, was in New York last week from South America. He is en route to Europe.

* * *

J. B. BUHLER, boilermaker for Standard Oil Company of Venezuela, returned to the United States recently for a three weeks' vacation.

* * *

C. H. EHLERS, of the North European Oil Company, with headquarters in New York City, is now in Germany inspecting the company's properties.

* * *

DR. M. B. BLACKLER, manager of the Egyptian government's petroleum refinery at Suez, has left Egypt for England on a three months' vacation.

* * *

J. C. MARTIN, assistant district chief clerk, for the Humble Oil & Refining Company in the Kittrell district, Texas, has been transferred to the Gulf Coast division office, where he will be temporarily stationed on special work.

RICHARD HENRY DANA, formerly with the Wisconsin Geological Survey, is now with the Stanolind Oil & Gas Company at Carlsbad, N. Mex.

* * *

STEPHEN H. ROOK is engaged in micropaleontological work for the United Gas System at Houston, Tex.

* * *

MR. and MRS. FRED TURNER, of Mount Pleasant, Mich., recently attended homecoming at Ohio Wesleyan University.

* * *

ROBERT K. STALEY, formerly of Casper, Wyo., and at that time head of the Staley Syndicate, is now located at Red Lodge, Mont.

* * *

FRANK C. GREENE has been stationed temporarily at Kansas City, Mo., for the Missouri Geological Survey and Water Resources.

* * *

ERNEST S. PRATT, district geologist in Kansas for the Shell Petroleum Corporation for several years, has resigned to engage in independent work in Wichita, Kans.

* * *

JOHN G. BARTRAM, Rocky Mountain division geologist for the Stanolind Oil & Gas Company, left Casper, Wyo., for northern Montana where he will make an inspection trip through the fields in the northern part of the State.

THOMAS J. SUGARS, drilling contractor, has returned to Wainwright, Alberta, from southern Saskatchewan.

* * *

F. E. RENNER, office manager for GEORGE G. HANNERS, independent operator in Central Michigan, is reported recovering from injuries received some weeks ago.

* * *

DR. T. B. WILLIAMS, geologist, of Calgary, Alberta, has been elected honorary president of the Geological and Mining Club of the Provincial Institute of Technology and Art in Calgary.

* * *

HENRY G. HUNT, executive secretary of the Oil and Gas Association of Michigan, has been named a director of the State Accident Fund, representing the oil and gas interests of the State.

* * *

A. W. HUNTER, of Vancouver, British Columbia, recently visited Calgary and other Alberta points in connection with operations of the Maxmont Syndicate on the Watson structure near Lundbreck.

* * *

GEORGE W. GORMAN, recently appointed deputy minister of education for Alberta with headquarters at Edmonton, was formerly well known to Canadian oil men, having been prior to 1907 engaged in the drilling machinery business at Petrolia, Ontario.

* * *

S. B. HUNT, purchasing agent, Moorlane Company, visited the Houston, Tex., office of the company last week.

* * *

J. P. RAYZOR, with the Shasta Oil Company with headquarters at Wichita Falls, Tex., was a business visitor to San Antonio, Tex., the past week.

* * *

G. C. FRANCISCO, JR., in charge of the Sun Oil Company's operations on the Gulf Coast, is deer hunting around the mountains of West Texas.

* * *

DEL CROSBY, scout for the Humble Oil & Refining Company, has been transferred from Corpus Christi, Tex., to Corsicana, Tex.

* * *

J. von PUTTKAMMER, who is connected with the German operations of the Socony-Vacuum Oil Company, Inc., is now visiting the home offices of the company in New York.

* * *

I. C. CORBELL, formerly engineer for Humble Oil & Refining Company at the Rising Star gasoline plant, has been promoted to plant foreman of the Rising Star gasoline plant.

* * *

SOL SANDERS, formerly scout for the Texas Company, at Longview, Tex., is now production superintendent for the Guiberson Oil Company, with headquarters at Dallas, Tex.

* * *

C. W. TOMLINSON, Ardmore, Okla., with the Schermerhorn Oil Company, addressed the North Texas Geological Society on "The Pennsylvanians of Southern Oklahoma and North Texas," at Wichita Falls.

* * *

R. R. McCARTY, formerly district petroleum engineer for Humble Oil & Refining Company in the Andrews County district, Texas, has been promoted to assistant district superintendent for that district.

DO YOU REMEMBER?

From The Oil and Gas Journal Files

25 Years Ago

November 22, 1909

George W. Gordon, assistant superintendent of the Standard Oil Co.'s Bayway, N. J., refinery, and Miss Stella Walker, of Portland, Me., were married on November 17.

Glen T. Braden is heading a syndicate which is planning to pipe Oklahoma gas to St. Louis, Mo. The question of the legality of shipping gas out of the State is still in the courts.

General Manager C. H. Markham, of the Gulf Pipe Line Co., has been promoted to the Pittsburgh headquarters of the Gulf and will be succeeded by F. A. Leovy, who for three years has been manager of the Oklahoma division of the company. C. C. Barry will succeed Mr. Leovy in Oklahoma. Messrs. Markham and Barry were former railroad men.

It was the town of Dropright, Okla., and not Drumright, that changed its name to Markham, in honor of John H. Markham, Jr.

20 Years Ago

November 19, 1914

An uproar is caused, and the sellers roundly censured, when 55,000 bbls. of Healdton oil is sold below the posted price.

T. N. Barnsdall, of Pittsburgh, Pa., has taken a contract to lay a natural gas pipe line from the Mexia gas field, in Texas, to Waco for the Texas Power & Light Co.

The Sour Lake Pool is producing 24,500 bbls. of the total of 44,500 bbls. being produced daily by the Gulf Coast Field in Texas and Louisiana.

James R. Barbour, who one month after the completion of the Drake well, went into the oil business as an operator in the Oil Creek area, dies in Titusville, Pa., at the age of 76 years. He completed his first well early in 1860 on the John McClintock farm at Rouseville, near Oil City.

10 Years Ago

November 20, 1924

Henry L. Doherty advocates the careful development of oil pools, including the conservation of reservoir energy. He criticizes big guns of the industry for failing to consider his plan, charging that they rejected it before they knew what it was.

Dr. David White tells Bradford, Pa., oil producers that two-thirds of the original petroleum content of the Bradford sand is still down there waiting to be extracted by one or another means.

Oil securities reach a new high mark. Twenty representative petroleum stocks averaged $50.07 per share.

Production of the United States is 331,000 bbls. per day lower than at this time in 1923, when Powell reached its peak.

HARRY POTTS, Kerotest Manufacturing Company, Pittsburgh, Pa., was in Tulsa last week.

* * *

JIMMY CHARLTON, with the California Oil Company at San Antonio, Tex., has returned from Dallas, Tex.

* * *

P. E. FITZGERALD, Rocky Mountain district manager of Dowell Incorporated, was in Casper, Wyo., last week.

* * *

E. S. MORROW has recently joined the Reading Iron Company in a sales capacity and will represent the company in the Southwest territory.

* * *

M. C. SEAMARK, of the Fields branch of the Anglo-Persian Oil Company, Ltd., has returned to London, England, after a prolonged visit to the United States.

* * *

HARRY W. SCHUETZ, Colona division, Pittsburgh Screw & Bolt Company, Pittsburgh, Pa., stopped off in Tulsa for a few days on a trip through the Southwest.

* * *

B. B. WESTCOTT, chief metallurgist, and HARVEY KENNEDY, research department, Gulf Oil Corporation, Pittsburgh, Pa., have been in Tulsa for several days.

* * *

TED HUGHES, who has been headquartering in Rawlins, Wyo., for several months, is in Casper, Wyo., making preparations to drill a test on acreage in the Mahoney Dome oil field, Carbon County, Montana.

* * *

F. C. EVANS, of Denver, Colo., who holds the government permit on the Paint Rock structure, Big Horn County, on which the Wyoming Oil & Refining Company is preparing to drill a wildcat test, was in Basin, Wyo., the past week.

* * *

R. R. PATTON is with the Standard Oil Company of Venezuela.

* * *

MAURICE R. BRIDGEMAN, of the Anglo-Persian Oil Company, of London, England, is visiting in the United States and was an interested attendant at sessions of the American Petroleum Institute last week in Dallas, Tex.

* * *

L. W. BAKER has been appointed manager of sales for the State of Texas for the Lucey Products Corporation, with headquarters in Room 1617, First National Bank Building, Dallas, Tex.

* * *

CHAUNCEY L. WADDELL, of New York, has been elected a director and vice president of the Sunray Oil Corporation. He will devote his time chiefly to the financial affairs of the company. He was formerly associated with Dillon, Read & Company, and in recent years has been vice president and a director of G. L. Ohrstrom & Company, Inc.

* * *

E. E. FLEMING has been appointed purchasing agent of the Shell Petroleum Corporation in Tulsa to succeed the late JOHN LONG. Mr. Fleming has been with the Shell for 11½ years. He has been in Tulsa for seven years, most of which was spent in the purchases and stores department of the organization. He also acted as substitute for Mr. Long during the absence preceding his death.

* * *

THE LEGAL and patent departments of the Standard Oil Development Company have been consolidated under the direction of W. E. CURRIE, vice president, and R. H. DICKSON has been transferred to the new department. DR. G. M. MAVERICK, manager of research and development activities at Bayway, has been transferred to the New York office to take over supervision of many of the general technical activities formerly coming under Mr. Russell.

Texaco Head Pilots Many Activities

As president of the Texas Corporation and the Texas Company, W. S. S. Rodgers heads one of the largest industrial and marketing organizations of the country. Its oil interests touch every state in the Union and practically all of the important points in foreign countries. Direction of these widely scattered and rapidly expanding producing, transporting, refining and marketing operations by Mr. Rodgers and his associated executives and those who preceded them has been one of the major accomplishments in petroleum annals.

W. S. S. RODGERS

Mr. Rodgers' practical experience in the oil business touches virtually all phases of operations. Born in Columbus, Ohio, he received technical training in the Sheffield Scientific School, Yale University, graduating in 1907. After a few years of mining experience he entered the oil business, starting with a producing company in the Midway Field, Kern County, California. Following this he was employed by the American Oriental Company, a refining and marketing organization, at its refinery in Martinez, Calif.

Employment with the Texas Company started November 1, 1915, and during the next 10 years except for a period of service in the World War with the U. S. Army, Mr. Rodgers held various positions in the company's refining department. In 1925 he was assigned to special duties in the executive department and in March of the following year he became assistant to the president. In October, 1928, he was appointed a vice president of the company and placed in charge of domestic sales and later the same year was elected a director.

Mr. Rodgers was elected to the company's executive committee in 1929 and in April, 1933, became president of the Texas Corporation. His offices are located at the New York headquarters of the company.

A. J. HAZLETT, editor and publisher of the Inland Oil Index, Casper, Wyo., is visiting his daughter, MRS. D. D. DELLINGER, in Dallas, Tex.

* * *

VALENTINE M. KIRK, of the Frannie Oil Company, was in Casper, Wyo., negotiating for a gas market for his recently completed well which proves closure of the south fault block area of the Oregon Basin Field in Park County, Wyoming.

* * *

FRANK REEVES, formerly of the U. S. Geological Survey; L. G. PUTNAM, formerly with the Western Gulf Oil Company; and WILLARD A. FINDLAY, formerly with the Superior Oil Company, are in Australia with D. DALE CONDIT, of California, working for Oil Search Limited of Sydney.

* * *

JOHN Y. SNYDER, Shreveport, La., a past president of the American Association of Petroleum Geologists, was elected to honorary membership in Sigma Xi when the chapter of that society was established recently at Tulane University, New Orleans, La. Election was by virtue of notable contributions in the science of geology, although Mr. Snyder's degree, in 1897, was B.E. in architectural engineering.

* * *

HARRY B. FIELDS, Wichita, Kans., geologist with the Texas Company, has left for New York City to receive instructions from officials in the foreign department of the company prior to sailing for Buenos Aires. He expects to be assigned to geological research work in the Patagonia area. Mr. Fields, a native of Iowa, grew to manhood in Regina, Saskatchewan, Canada. He was graduated from the University of Iowa in 1926. He gained his first experience in oil fields soon after graduation from college. He was stationed in the Quirie Field in the interior of Venezuela as geologist from 1926 to 1928.

LEON BOOTH, purchasing agent, Selby Oil & Refining Company, visited his mother in Marietta, Ohio.

* * *

GEORGE F. BELL, special representative of the American Steel & Wire Company, has gone to the Wyoming oil fields on a business trip.

* * *

JOHN W. FISHER, of the International Petroleum Company, Ltd., arrived in New York, November 20, on the Grace liner, Santa Maria, from Peru.

* * *

E. F. GUIDINGER, engineering department, Phillips Petroleum Company, Bartlesville, Okla., stopped off in Tulsa on company business last week.

* * *

H. B. MALONE, general purchasing agent, Sinclair Consolidated Oil Corporation, New York, spent several days at the Tulsa office of the company last week.

* * *

GEORGE WARR, court reporter on the Oklahoma Corporation Commission staff, has resigned to devote his time to the oil business. He is a member of the firm of Rarkins and Warr, operating in the Oklahoma City Field.

* * *

C. C. FRITTS, ROY PAYNE, and J. W. NANCE, geologists; LOUIS HEWES, civil engineer, and J. M. PINKERTON, electrical engineer, recently arrived in Venezuela from the United States for employment with Standard Oil Company of Venezuela.

* * *

H. F. (MIKE) RYAN, Tulsa branch manager for the Gardner-Denver Company, who recently underwent an emergency operation for appendicitis in Morningside Hospital, Tulsa, is able to spend part of each day in his office again.

* * *

ALLEN W. WALDO, A.B., M.S., University of Illinois (geology), M.A., Ph.D., Harvard (geology), has been added to the staff of the oil and gas department, Pennsylvania State College, as research petrographer, PROF. C. A. BONINE, department head, announces. This is in line with plans to intensify research work in connection with oil and gas sand studies in Pennsylvania.

* * *

E. V. MURPHREE, formerly director of research and development at Baton Rouge, La., has been transferred to the New York office, to co-ordinate development work carried out by the Standard Oil Company of Louisiana for the Standard Oil Development Company's account. D. G. TOMKINS goes to "26" from Bayway and will be in charge of the general business and accounting office.

* * *

W. R. CARLISLE, vice president of Standard-I. G. Company, and DR. W. V. HANKS, head of the technical information unit of the Standard Oil Development Company, and secretary of the technical committee, have sailed for London, England, where they will be engaged in development company activities in Europe. W. CARL WINNING comes over from Bayway to take over Doctor Hanks' work in New York.

* * *

R. T. HASLAM, vice president and general manager of the Standard Oil Development Company, for the past year, has been working closely with the sales department, particularly in the development of its lubrication division, leaving much of the active supervision of development company work upon R. P. RUSSELL, general manager of the company's development division and of the Hydro Engineering & Chemical Company. Mr. Russell has now been elected vice president and general manager of the Standard Oil Development Company. Doctor Haslam, while remaining vice president and director of the company, will be free to devote more of his time to sales.

MARKET RECORD OF OIL SECURITIES

Active Oil Stocks Listed on New York Stock Exchange

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1934 High	1934 Low	Week ended Nov. 17 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	1933 High	1933 Low	1932 High	1932 Low	1931 High	1931 Low
55⅝	39	2,300	47	44½	..	Amerada Corp.	774,875	N.P.	50cQ	10-31-34	47⅝	18½	22¾	12	23	11¼
35¼	21½	12,000	26¼	25⅝	25⅞	Atlantic Refining	2,673,834	$25	25cQ	12-15-34	32½	12⅝	21⅞	8⅝	23⅝	8⅝
10	5⅞	8,600	6⅞	6⅝	6⅝	Barnsdall Corp. A	2,248,795	$5	....	5-11-31	11	3	7	3⅜	14½	4
19¼	6⅞	26,200	8¼	7⅝	7¾	Columbia Gas & Elec.	11,610,036	N.P.	....	5-15-34	28⅛	9	21	4¼	45⅝	11⅝
14¼	7¼	21,400	8⅞	8⅝	8⅝	Consolidated Oil Corp.	14,218,835	N.P.	14c	10-31-34	15¾	5	9	4	15⅞	4½
22¾	15¾	12,900	18⅞	18¼	18¼	Continental Oil of Delaware	4,738,593	$5	25c	10-31-34	19⅝	4⅞	9⅝	3⅝	12	5
23½	12	1,700	18	17	17	General Asphalt	387,149	$10	....	6-15-32	27	4⅝	15½	4¾	47	9⅝
5⅝	2½	500	3	2⅞	2⅞	Houston Oil (new)	1,098,618	$25	....	10-17-30	7⅜	1⅞	5⅜	1⅛	14⅛	3
3⅜	1	300	1⅛	1⅛	1⅛	Louisiana Oil Refining	1,302,158	N.P.	....	.....	4	⅝	2¼	½	4½	1
14⅜	9⅛	6,200	11⅞	11⅛	11⅜	Mid-Continent Petroleum	1,857,912	$10	25c	11-15-34	16	3¾	8⅞	3¾	16¾	5
21⅛	10	2,500	13⅞	12⅛	13¼	National Supply of Delaware	382,591	$25	....	5-15-31	28⅝	4	13	3½	10¼	5
15⅞	8½	17,600	10⅞	9⅞	10	Ohio Oil Co.	6,563,107	N.P.	15c	12-15-34	17⅝	4¾	11	5	19½	5⅛
8⅞	5½	100	7	7	7	Pacific Western Oil	1,000,000	N.P.	25c‡	10-25-33	9½	3	8	3	15	2⅞
2½	⅝	200	1¼	1⅛	1⅛	Panhandle P. & R.	198,770	N.P.	....	.....	4¼	⅜	1¼	¼	4¼	⅝
20¾	13⅜	10,500	16⅛	15¼	15⅝	Phillips Petroleum	4,154,687	N.P.	25c	12-1-34	18¾	4¾	8⅛	2	16⅝	4
16⅜	8	10,200	9⅞	9	9½	Plymouth Oil Co.	990,261	$5	25cQ	9-29-34	17⅝	6¾	12½	6	18	6
14⅞	6¼	8,600	8	7⅛	7⅛	Pure Oil	3,038,370	N.P.	....	9-1-30	15⅜	2½	6½	2⅞	11⅞	3⅛
39⅛	30¼	300	30½	30¼	30¼	Royal Dutch N. Y. shares	432,224	$14	$1.35	7-31-34	39¾	17⅝	23¾	12⅛	42⅝	13
38⅜	20⅜	6,200	27⅛	25¾	26⅝	Seaboard Oil of Delaware	1,204,460	N.P.	15cQ§	12-15-34	43⅜	15	20⅜	6⅝	20⅜	5½
11½	6	4,100	7¼	6⅝	6⅝	Shell Union Oil	13,070,625	N.P.	....	6-30-30	11⅝	4	8¾	2½	10¼	2½
89	57	700	69	68	68	Shell Union Oil pfd.	400,000	$100	....	7-1-31	61	28½	65¼	18	78	15
16¼	7¼	24,900	16¼	14⅜	16	Simms Petroleum	461,000	$10	30c	8-1-34	12⅜	4⅞	7½	3¼	11	3½
11½	6	2,600	7⅜	6½	7¼	Skelly Oil	1,008,514	$25	....	12-15-30	9⅞	3	5¾	2½	12⅞	2
19⅞	12½	39,600	15¼	14⅞	14⅜	Socony-Vacuum	31,019,694	$25	15cQ	12-15-34	17	6	12¼	5¼	21	8⅜
42⅞	26½	16,500	34¼	32⅞	33	Standard Oil of California	13,102,900	N.P.	25c	12-15-34	45	19½	31⅞	15½	51¾	23½
41	27	No sales	..	..	..	Standard Oil (Indiana)	15,941,894	$25	25cQ	12-15-34	34	17	25½	13⅛	38½	13½
50⅛	39¼	27,900	44	42⅜	42⅞	Standard Oil of Kansas	200,000	$10	50cQ	10-31-34	39⅞	12⅜	16½	7	19	7⅝
73	51½	1,200	73	72	73	Standard Oil of New Jersey	25,740,065	$25	50cSA§	12-15-34	47½	22¾	37⅜	19⅞	52½	26
29⅜	19¾	10,300	22½	21⅝	21¾	Sun Oil	1,733,013	N.P.	25cQ†	12-15-34	59	35	39⅞	24⅜	45¼	26¾
6½	2½	1,200	4¼	3½	3⅝	Texas Corp.	9,486,417	$25	25cQ	10-1-34	30½	10⅜	18¼	9¼	36¼	9⅞
14⅝	8	7,700	9¾	9⅛	9⅛	Texas Pacific Coal & Oil	880,703	$10	....	12-31-29	6½	1⅜	4	1½	6½	1⅞
85¼	64½	500	81⅜	80½	80½	Tide Water Associated	5,618,672	N.P.	....	2-16-31	11¾	3⅛	5⅝	2	9	2⅛
20½	11½	2,500	16	15½	15⅝	Tide Water Associated pfd.	666,524	$100	$1.50Q	10-10-34	65¼	23½	60	20	68	20½
21¾	15⅝	1,400	21¾	21	21½	Union Oil of California	4,386,070	$25	25cQ	11-10-34	23⅜	8½	15⅝	8	26⅝	11
5¾	2½	1,200	2⅞	2⅝	2⅝	Union Tank Car	1,200,000	N.P.	30cQ	12-1-34	22¾	10½	19¼	11¾	25⅛	16
32¾	23¼	13,500	25¼	24⅝	25	Wilcox Oil & Gas	424,839	$5	....	5-10-28	5½	2	8¾	2¾	9⅞	2⅜

*Ex-dividend. †Plus extras in common stock. ‡Initial dividend. §Plus extras.

Active Oil Stocks Listed on New York Curb

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1934 High	1934 Low	Week ended Nov. 17 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	1933 High	1933 Low	1932 High	1932 Low	1931 High	1931 Low
38	26	550	32	31¾	31¾	Buckeye Pipe Line Co.	200,000	$50	75cQ	12-15-34	39¾	25	35	17½	56	30
5½	2	900	2½	2¼	2¼	Carib Syndicate	579,000	25c	....	.....	7¾	¼	¾	¼	2⅜	¼
131½	115	100	131½	129	131½	Chesebrough Mfg. Co.	120,000	$25	$1Q†	12-28-34	129	71	90	53	129½	75
4¼	1½	19,800	1¾	1½	1½	Cities Service	37,804,394	N.P.	....	6-1-32	6¼	1½	6⅞	1¼	20¾	5
3¼	¾	1,200	¾	¾	¾	Colon Oil	2,200,000	N.P.	....	.....	4	¼	1¼	¼	3⅛	¼
3⅞	1	700	1⅛	1	1	Cosden Oil	399,687	$1	....	.....	3⅞	1⅜	2⅞	¼	3¾	⅜
14⅜	9⅝	3,600	13½	13⅛	13¼	Creole Petroleum	6,974,356	$5	....	.....	12	4¾	3⅛	1⅜	3⅞	1⅜
7½	4¼	200	4⅝	4½	4½	Darby Petroleum	509,696	$5	25c	7-25-34	8	2⅛	7⅛	1⅝	2½	1⅜
2¼	1	800	1⅛	1⅛	1⅛	Derby Oil & Refining	263,162	N.P.	....	.....	2¾	⅞	3	1	6	1½
37	30	100	33	33	33	Eureka Pipe Line	50,000	$100	$1Q	11-1-34	41¾	20	35	18	36	19
76¾	49¾	1,500	58¼	56	56	Gulf Oil Corp.	4,538,101	$25	....	10-1-31	62	24	44¾	23	75½	25⅝
46⅜	33¼	5,700	43⅝	42¼	42¾	Humble Oil & Refining (new)	8,923,935	N.P.	25cQ	10-1-34	105½	40	55	35⅝	72	44½
17⅞	12⅝	14,800	17⅝	17⅛	17⅜	Imperial Oil of Canada	26,857,152	N.P.	25cSA†‡	12-1-34	15⅞	6½	10⅞	6¼	18¼	7⅜
6⅞	3¾	200	4	4	4	Indiana Pipe Line	300,000	$10	15cSA†	11-15-34	8	3⅛	7½	2¾	21⅛	5½
33⅜	19⅜	12,600	33	31⅝	31⅞	International Petroleum	14,247,088	N.P.	56cSA†‡	12-1-34	23½	8⅞	12¼	8	15½	7⅜
4⅝	2⅛	7,600	4⅝	4	4⅝	Louisiana Land & Exp.	3,000,000	N.P.	....	.....	2¼	1/16	2½	½	2	½
5⅞	3½	1,100	5⅞	3⅝	5⅞	Lion Oil Refining	270,000	N.P.	....	10-27-30	9½	1¼	3½	⅞	6¾	1½
8⅜	4¼	1,900	5½	5⅛	5⅛	Lone Star Gas	5,382,723	N.P.	16cQ§	3-31-34	11⅞	4¾	11	3⅜	29	5½
5½	4	1,000	4⅝	4⅝	4⅝	Mountain Producers	1,682,182	$10	15cQ	10-1-34	6½	2½	4¾	2⅛	5⅞	2
18⅛	13¼	1,000	14¼	13⅝	13⅝	National Fuel Gas	3,810,183	N.P.	25cQ	10-15-34	20	10	14⅝	8	26½	9⅜
9½	7	300	7½	7¼	7¼	National Transit	509,000	$12.50	35cSA	12-15-34	10	5½	10½	6	17½	5
2½	1¾	No sales	..	..	..	New Bradford Oil	1,445,202	$5	10c	9-15-34	2⅛	½	⅞	¼	1½	½
2¾	1	500	1¾	1¾	1¾	New Mexico and Arizona	1,000,000	$1	....	.....	1⅞	½	1¼	⅜	3	¾
4¾	3	No sales	..	..	..	New York Transit	100,000	$5	15cSA	10-15-34	4⅞	3	9¾	7½	14½	5⅞
7	4⅝	100	5¾	5¾	5¾	Northern Pipe Line	120,000	$10	25cSA	1-2-35	6¼	4¼	5½	3⅛	35½	20
2⅝	⅞	1,700	1½	1⅜	1⅜	Pantepec Oil	1,608,700	N.P.	....	.....	3⅝	⅛	⅝	1/16	2	⅜
3⅜	⅞	200	1¼	1¼	1¼	Ryan Consolidated	296,931	N.P.	....	.....	4¼	⅝	2⅛	⅝	3	¾
7⅞	5½	1,300	6½	6⅛	6⅛	Salt Creek Producers	1,496,859	$10	20cQ	11-1-34	9¼	3½	5½	2⅞	7⅝	2⅜
26½	17½	1,400	22½	22	22¼	South Penn Oil	1,200,000	$25	30cQ	9-29-34	22⅛	11	16½	9⅝	23⅞	9¼
5¼	3⅝	No sales	..	..	..	Southern Pipe Line	100,000	$10	15cSA	9-1-34	6	2⅛	10	3¾	17	7
47	41	50	43¾	43¾	43¾	Southwest Penna. Pipe Lines	35,000	$50	$1Q	10-1-34	43	24½	37	27	42½	25
17⅝	14⅝	7,600	17⅛	15⅞	17⅛	Standard Oil of Kentucky	2,603,983	$10	25cQ†	12-15-34	19¼	8⅜	15⅞	8⅞	23⅝	12⅛
16⅞	8¾	600	9	8¾	9	Standard Oil of Nebraska	190,822	$25	....	6-20-34	20½	11	19	10¼	36½	16
28½	12¼	650	13¼	12½	12½	Standard Oil of Ohio	1,610,810	$25	....	1-3-33	41	15½	30½	15½	62½	23
2	1/16	800	1	1	1	Sunray Oil	1,162,840	$1	....	4-15-31	1½	¼	⅝	⅛	5¼	¼
11	4⅝	600	6⅛	6	6⅛	Texon Oil & Land	936,028	N.P.	15cQ†	9-29-34	13¾	6¼	10½	4½	12⅞	2⅛

*Ex-dividend. †Plus extras. ‡Payable in Canadian funds. §Payable in preferred stock.

Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

Kansas Wildcats

(Continued from Page 63)

Lario Oil & Gas Co.'s No. 1 Harbalek, SW NW Sec. 7-16-10w.
Set 8-in. csg. 2,404 ft.; drlg. 2,975 ft.

GREENWOOD COUNTY

Greeley et al's No. 1 Satler, SW SE SW Sec. 28-25-12.
S.D. 885 ft.

Texas Co.'s No. 1 Edwards, NE NW NE Sec. 32-24-12.
Drlg. 790 ft.

HARVEY COUNTY

O. J. Connell et al's No. 1 Roth, SW cor. Sec. 16-22-2w.
Spudded.

Imo O. & G. Co. et al's No. 1 Sperling, SE NE NE Sec. 33-23-2.
Drlg. 2,000 ft.

Wenzel et al's No. 1 Schrag, NW SE Sec. 24-23-3w.
T.D. 587 ft.; S.D. for csg.

McPHERSON COUNTY

C. W. Lamer et al's No. 1 Rolander, NE NE NW Sec. 8-18-2w.
T.D. 2,375 ft.; U.R. 8-in. csg.

Roth-Farout et al's No. 1 Bestwater, SE SW SE Sec. 23-20-1w.
Drlg. 2,445 ft.

NESS COUNTY

Texas Co. and Gypsy Oil Co.'s No. 1 Goodman, C SW SW Sec. 21-19-23w.
Spudded.

OSAGE COUNTY

Jim Edwards' No. 1 Detrich, C NW SE Sec. 21-14-15.
Spudded and S.D.

OSBORNE COUNTY

Carmen & Hershey's No. 1 Fritz, C NE NE Sec. 9-10-14w.
T.D. 3,357 ft.; fishing.

RENO COUNTY

Foraker et al's No. 1 Hiett, SE SW NE Sec. 34-24-4w.
Drlg. 600 ft.

McBride et al's No. 1 Popp, SW SW NE Sec. 32-24-4w.
Drlg. 3,595 ft.

Privett Drlg. Co.'s No. 1 Crotts, NE NW NE Sec. 27-26-10w.
H.F.W. 2,422 ft.; T.D. 2,452 ft.; U.R. 8-in. csg.

RICE COUNTY

Foraker, Nickerson et al's No. 1 Lyon, SE NW Sec. 27-20-8w.
S.D. 1,060 ft.

Lario O. & G. Co. and Reserve Pet. Co.'s No. 1 Shepherd, SW SW NW Sec. 15-22-5w.
Rigged up.

Lario O. & G. Co. et al's No. 1 Schrag, NW SE SW Sec. 22-19-4w.
Drlg. 635 ft.

Marathon Oil Co.'s No. 1 Kline, SW SE Sec. 19-14-24w.
Set 10-in. 3,408 ft.; drlg. 3,755 ft.

Stofford et al's No. 1 Krehbiel, NW NW SE Sec. 27-21-3w. (O.W.D.D.)
C.O. at 2,080 ft.

Stark & Well's No. 1 Smith, NW cor. Sec. 30-19-8w.
Location.

Twin Drlg. Co. et al's No. 1 Rolfs, SW NW SW Sec. 13-17-9w.
Drlg. 2,500 ft.

Langston et al's No. 1 Markle, NE SW Sec. 1-20-9w.
Show of oil 2,890-2,906 ft.; S.D.

Yingling et al's No. 1 Maupin, NW SW SW Sec. 1-18-8w.
T.D. 2,850 ft.; U.R. 8-in. csg.

ROOKS COUNTY

Stearns & Streeter's No. 1 Meyers, NE NW NW Sec. 34-9-16w.
S.D. 800 ft.

RUSH COUNTY

Corbett, Barbour et al's No. 1 Schmidt, SW SW SE Sec. 10-17-16w.
Showing of gas 2,985 ft.; drlg. 3,127 ft.

Flynn et al's No. 1 Hartman, SW SE NW Sec. 4-18-16w.
Location.

Lario O. & G. Co. and Phillips Pet. Co.'s No. 1 Benbow, NW NE NE Sec. 12-17-19w.
Rigging up.

RUSSELL COUNTY

Blair et al's No. 1 Fink, SW NW SE Sec. 16-14-14w.
Rigging up.

Eldorado Ref. Co.'s No. 1 Stratman, SW SE SE Sec. 32-14-11w.
H.F.W. 3,245 ft.; T.D. 3,250 ft.; abd.

Darby Pet. Co.'s No. 1 Jarus, NW SW NE Sec. 16-16-12w.
Drlg. 800 ft.

Lario O. & G. Co. et al's No. 1 Nuss, NW SW SW Sec. 11-16-14w.
Location.

Lario O. & G. Co. et al's No. 1 Moore, 760 ft. S and 660 ft. E. NW cor. Sec. 34-13-12w.
Location.

Tom Palmer et al's No. 1 Herbel, NW SW Sec. 4-12-11w.
Set 8-in. csg. 2,743 ft.; drlg. 2,745 ft.

SALINE COUNTY

J. Brouk and R. D. Bailey's No. 1 Kluesner, NW NW SE Sec. 34-15-2w.
Location.

Dieter et al's No. 1 Herrington, NE NW SE Sec. 2-13-1w.
S.D. 1,785 ft.

SCOTT COUNTY

Atlantic Oil Prod. Co.'s No. 1 Vaniman, C SE NE Sec. 15-20-33w.
Set 8-in. 4,387 ft.; T.D.

SEDGWICK COUNTY

Aladdin Pet. Co. et al's No. 1 D. Lauck, SE NE NW Sec. 21-28-2.
Rig.

Allison & Fitzwilliams et al's No. 1 Struthers, NE SW Sec. 34-28-3w.
Set 10-in. csg. 2,336 ft.; drlg. 2,415 ft.

Leo Keller et al's No. 1 Russell, SW SW NW Sec. 16-29-2.
Cellar.

D. R. Lauck et al's No. 1 Roy, SE SW Sec. 20-29-1w.
Set 6-in. csg. 3,625 ft.; drlg. 3,676 ft.

Syndicate O. & G. Co. et al's No. 1 Ratzlaff, NE NW NW Sec. 30-26-2.
Drlg. 2,625 ft.

STAFFORD COUNTY

Atlantic Oil Prod. Co. and Phillips Pet. Co.'s No. 1 Guthrie, C NW NW Sec. 15-25-11w.
Spudded.

SUMNER COUNTY

T. Palmer's No. 1 Wentworth, NW NW NE Sec. 9-35-2.
Moving in material.

Wentz et al's No. 1 Horsley, CSL SW SW SW Sec. 18-35-1.
Chat 3,623 ft.; show of oil 3,623-35 ft.; drlg. 3,658 ft.

TREGO COUNTY

Marathon Oil Co.'s No. 1 Kline, SW SE Sec. 19-14-24w.
Mississippi lime 4,402 ft.; T.D. 4,615 ft.; U.R. 6-in. csg.

WASHINGTON COUNTY

Rose Oil Co. et al's No. 1 Penwell, NE NW SE NE Sec. 16-3-3 (O.W.D.D.).
Old T.D. 1,720 ft.; R.U. and S.D.

Gulf Coast Wildcats

(Continued from Page 67)

Texas Co.'s No. 9-A Belcher, 1,650 ft. S, 42 deg. W, and 330 ft. N, 48 deg. W of E cor. of lease, H. N. Little Sur.
Drlg. sand 5,690 ft.

Texas Co.'s No. 1 Thomas James, 247.5 ft. N and 330 ft. E of SW cor. of Lot 1, A. C.H.&B. Sur. 91, Abst. 402.
Drlg. sticky shale 5,685 ft.

Texas Co.'s No. 11 Houston Oil Field Association, 441.8 ft. W and 247 ft. N of SE cor. of Lot 9, A.C.H.&B. Sur., 91, Abst. 402.
7-in. csg. 3,964 ft.; T.D. 3,987 ft.; I.P. 24 bbls. per hr.; ⅝-in. choke; tubing pressure 240 lbs.

Gulf Prod. Co.'s No. 4 Colby, 330 ft. out of most northerly NE cor. of 200-ac. tract, Thomas Sproggins Sur.
Drlg. shale 5,700 ft.

Texas Co.'s No. 1-A Massey, 330 ft. out of NW cor. of 33-ac. tract in H. Stevens Sur.
T.D. 7,957 ft.; P.B. to 7,380 ft.

STRATTON RIDGE—BRAZORIA COUNTY

Amerada Pet. Corp.'s No. 1 Bowers, 2,405 ft. N line and 1,550 ft. from E line of Jared Groce Sur.
Drlg. hard sand and shale 2,315 ft.

WEST COLUMBIA—BRAZORIA COUNTY

Texas Co.'s No. 84 Hogg, 2,483 ft. N, 50 ft. W from SE cor. of lease in M. Varner Sur. Temporarily S.D. 5,242 ft.

BARBERS HILL—CHAMBERS COUNTY

McAlbert Oil Co.'s No. 7 J. F. Wilburn, 150 ft. W of No. 6 and C of H. Griffin Sur.
T.D. 4,690 ft.; cutting and pulling liner to 4,630 ft.

Moody Corp.'s No. 1-C E. W. Barber, 302 ft. from N line and 312 ft. from E line of "B" lease, H. Griffith Sur.
T.D. 1,403 ft.; set 246 ft. of 13⅜-in. liner at 1,379 ft.; W.O.C.

Humble O. & R. Co.'s No. 7-B Kirby, 300 ft. W of No. 6 in Henry Griffith league.
Drlg. salt 2,903 ft.

Sun Oil Co.'s No. 6 Higgins, 302 ft. W of E line and 432 ft. N of S line of lease.
Drlg. lime and shale 3,823 ft.

Sun Oil Co.'s No. 10 Chambers, 50 ft. from N and W lines of lease.
Fishing 3,658 ft.

Sun Oil Co.'s No. 17 Wilburn fee, 188 ft. E of W line and 40 ft. S of N line and 130 ft. W of No. 16.
Derrick.

Sun Oil Co.'s No. 22 J. Wilburn, midway between wells No. 17 and 21, or 150 ft. from each well.
T.D. 3,257 ft.; sidetracked 3,178 ft.; fishing for drill pipe.

Texas Gulf Prod. Co.'s No. 4-B E. W. Barber, 75 ft. S of Moody Corp.'s No. 6-A Barber and 75 ft. from SW line of 38-ac. lease, H. Griffith Sur.
Drlg. sand 3,552 ft.

Texas Gulf Prod. Co.'s No. 5 J. F. Wilburn, 110 ft. W of No. 3 and 50 ft. N of S line of lease, Wm. Hodge Sur.
9⅝-in. csg. 4,160 ft.; comp. 325 bbls.; T.D. 4,202 ft.

Texas Gulf Prod. Co.'s No. 3 O. W. Winfree, 595 ft. S of N line and 50 ft. W of Drlg. hard shale 5,015 ft.

Yount Lee Oil Co.'s No. 25 Chambers County, 75 ft. S, 50 ft. W of NE cor. of lease Drlg. shale 4,752 ft.

Yount Lee Oil Co.'s No. 27 Chambers Co. 400 ft. W of No. 24 and in line with Nos. 24 and 21.
Derrick.

Yount Lee Oil Co.'s No. 28 Chambers County, 50 ft. N S line, direct offset to Sun's No. 10 Chambers County, Wm. Bloodgood Sur.
Derrick.

BOLING—FORT BEND COUNTY

Allied Minerals, Inc.'s No. 1 J. H. Blackwell, 1,400 ft. from E line, 100 ft. from S line of 50-ac. of J. H. Blackwell 100 ac., John Huff Sur.
Drlg. hard lime 3,218 ft.

Midland Oil Co.'s No. 1 P. F. Coulter, 150 ft. from S line, 4,174 ft. from W line of 100-ac. tract, Miller League No. 2.
D.S. stuck; T.D. 4,168 ft.

Allied Minerals, Inc.'s No. 1 E. C. Farmer, James Scott League, 750 ft. SE of NW line and 150 ft. SW of NE line of Gulf Prod. Co.'s E. C. Farmer 50-ac. tract.
Drlg. sand rock 3,744 ft.

Allied Minerals, Inc.'s No. 1 J. R. Farmer, 150 ft. out of most southerly 50-ac. tract, James Scott Sur. (workover).
T.D. 4,361 ft.; I.P. 500 bbls. per day; 175 lbs. tubing pressure; ⅝-in. choke.

Irwin Larsen et al's No. 1 J. R. Farmer, 100 ft. NW and 100 ft. SW from E cor. of 125-acre lease, James Scott Sur.
Location.

THOMPSON—FORT BEND COUNTY

Humble O. & R. Co.'s No. 30 Lockwood & Sharpe, 4,296 ft. W of E line, 293 ft. S of N line of lease, J. Rabb Sur.
Drlg. 5,410 ft.

Gulf Prod. Co.'s No. 9 Gubels, 450 ft. N, 475 ft. W of SE cor. of lease, Samuel Kennedy League.
Drlg. sand 5,345 ft.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 41 Moore, 3,373 ft. S along W line from NW cor. of James Frazier Sur., and 2,154 ft. at R/A.
Drlg. sand and lime 4,170 ft.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 42 Cade, N. Fitzsimmons Sur., half way between Nos. 26 and 28 and 150 ft. E at right angles.
Rig up.

Yount Lee Oil Co.'s No. 22 Smith.
No report.

ARRIOLA—HARDIN COUNTY

Houston Oil Co.'s No. 4-X Arriola fee, 400 ft. E of No. 3-X.
Drlg. sand 4,420 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 9 R. Jordit, 200 ft. due south of No. 5 R. J.
Drlg. gumbo 700 ft.

Hines Bros.' No. 1 Coswell.
Swabbing; T.D. 2,323 ft.

SOUR LAKE—HARDIN COUNTY

Alpha Pet. Co.'s No. 2 Weiss, E flank of dome.
T.D. 5,644 ft.; D.S. stuck.

Sun Oil Co.'s No. 2 Bernard Corp., 150 ft. from N and W lines of Lot 11, H.T.&B. Sur., Sec. 69.
Reaming 7,082 ft.

Texas Co.'s No. 313 fee, 150 ft. S and 250 ft. E of No. 308 fee.
Cmtd. 10-in. csg. at 645 ft.; 7-in. csg. at 1,575 ft.; T.D. 1,939 ft.; P.B. 1,594 ft.

GOOSE CREEK—HARRIS COUNTY

Kerring's No. 1 Williams, 150 ft. from SE cor. and 55 ft. NE of Hybush's No. 2, in W. Scott upper league.
Cellar.

Humble O. & R. Co.'s No. 80 Simms-Smith, Scott Lower League, 1,000 ft. E of the most westerly W line, and 300 ft. N of the most northerly S line.
Drlg. shale 6,492 ft.

PIERCE JUNCTION—HARRIS COUNTY

Gulf Prod. Co.'s No. 10 H. C. Cain, 399 ft. S and 290 ft. E of NW cor. of lease and 217 ft. N of No. 9, J. Hamilton Sur No. 879 (workover).
Drlg. sand and shale 4,070 ft.

Rio Bravo Oil Co.'s No. 27-A Settegast, 377 ft. S, 553 ft. W of NE cor. of Settegast "A" tract, James Hamilton Sur.
Drlg. gumbo 1,420 ft.

Rio Bravo Oil Corp.'s No. 9-A Settegast, 1,575 ft. N line, 350 ft. E line NE cor. "A" lease, J. A. Kopman Sur.
Drlg. 4,450 ft.

MYKAWA—HARRIS COUNTY

West Prod. Co.'s No. 1 Diamond, Blk. 12, F. J. Rothas Sur.
Fishing; T.D. 3,600 ft.

Danciger O. & R. Co.'s No. 1 Williams, SW cor. of 29-ac. lease.
Drlg. shale 1,000 ft.

West Prod. Co.'s No. 1 Lobit, C of Lot 17, Erin Gardens Subd., F. J. Rothaas Sur.
Coring shale 6,169 ft.

TOMBALL—HARRIS COUNTY

Amerada Pet. Corp.'s No. 3 Fitz-Rudel, 466 ft. from E line, 500 ft. from S line of 80-ac. lease, Joseph House Sur.
T.D. 5,585 ft.; brown shale; washing

Humble O. & R. Co.'s No. 1 Gossett.
Drlg. lime 3,552 ft.

Humble Oil & Ref. Co.'s No. 5-B Hope, 1,900 ft. from S line and 466 ft. from W line of "B" lease, A. Senchall Sur., Abst. 722.
Location.

Humble O. & R. Co.'s No. 3 Kuehn.
Rigging up.

Humble O. & R. Co.'s No. 5 Reid.
Drlg. shale 4,571 ft.

Humble O. & R. Co.'s No. 1 Tallman.
Drlg. boulders 1,887 ft.

Humble O. & R. Co.'s No. 1 Martens.
Drlg. shale 5,584 ft.

Humble O. & R. Co.'s No. 2-C Quilter.
W.O.C. 5,548 ft.

Texas Co.'s No. 2 Albert Ziegler, 466 ft. E and 466 ft. N of SW cor. of lease, Wm. Hurd Sur.
Drlg. sticky shale 5,539 ft.

KITTRELL-HOUSTON AND WALKER COUNTIES

Crown Central Pet. Corp.'s No. 1 Texas Long Leaf Lbr. Co. and Thompson Bros., 150 ft. from W line, 150 ft. from N line of 40-ac. tract in J. S. Estheridge Sur., Abst. 399.
Location.

Humble O. & R. Co.'s No. 2 Shaw, 330 ft. from SE line of lease and 660 ft. SW of No. 1 Charles McEllis Sur.
Made D.S. test from 1,974-2,000 ft.; tested 1,400 ft. of oil and 40 ft. of mud through ⅝-in. choke; S.D. for orders.

Humble O. & R. Co.'s No. 1 Texas Long Leaf Lbr. Co., 330 ft. from SW line and 330 ft. from SE line of Texas Long Leaf Lbr. Co., 696-ac. tract, C. C. McEllis Sur.
D.S. stuck at 3,870 ft.

Humble O. & R. Co.'s No. 2 Texas Long Leaf Lbr. Co., 330 ft. SW of NE line, 660 ft. SE of No. 3, Chas. McEllis Sur., Abst. 382.
Location.

Humble O. & R. Co.'s No. 3 Texas Long Leaf Lbr. Co., 330 ft. SE of NW line, 330 ft. SW of NE line, and 660 ft. NW of No. 2, Chas. McEllis Sur.
Location.

Trinity Dev. Co.'s No. 1 G. A. Knox, 1,000 ft. from SE line and 500 ft. from SW line of Wm. Prisesick Sur.
No report.

VANDERBILT—JACKSON COUNTY

Imperator Oil Co.'s No. 1 Dutton, S C of Lot No. 11, Blk. 35, 450 ft. S of R.R. and 1,350 ft. W line of townsite, Ray Musquis Sur.
Rigged up and S.D.

Turman Oil Co.'s No. 1 T. H. Miller, 150 ft. each way out of E 50-ac. of Miller 100-ac. tract in Ray Musquis Sur.
Rig up.

BIG HILL—JEFFERSON COUNTY

Yount Lee Oil Co.'s No. 1-A Pipkin, 2,640 ft. S and 2,050 ft. W of NE cor. of survey.
Drlg. shale 2,622 ft.

FANNETT—JEFFERSON COUNTY

Gulf Prod. Co.'s No. 15 Thomas, 200 ft. W of Gulf's No. 7 Burrell.
Drlg. sand rock 2,673 ft.

CLEVELAND—LIBERTY COUNTY

Gulf Prod. Co.'s No. 7 Kirby, 1,100 ft. N of No. 6-C Kirby.
Drlg. gumbo 1,032 ft.

ESPERSON—LIBERTY COUNTY

General Crude Oil Co.'s No. 14 Moores Bluff, 1,675 ft. S, 10 deg. S min. E of No. 10.
T.D. 4,495 ft.; reaming down 3,932 ft.

General Crude Oil Co.'s No. 9 Davis, 1,200 ft. each way from S and E lines of lease in D. Kokernut Sur.
T.D. 5,616 ft.; P.B. from 2,100-2,300 ft.; reaming.

General Crude Oil Co.'s No. 1 W. D. Kay, Malcom Duncan Sur., 1,537 ft. along N line from NE cor., 560 ft. S at R/A.
Coring sand 3,022 ft.

HANKAMER—LIBERTY COUNTY

Gulf Prod. Co.'s No. 3 Crow & Jacobs, 300 ft. each way out of SW cor. of survey, H.&T.C. Sur., A 253.
Drlg. gumbo and lime 3,312 ft.

BULL—LIBERTY COUNTY

Gulf Prod. Co.'s No. 74 Phoenix (W.O.).
Drlg. shale 5,252 ft.

Gulf Prod. Co.'s No. 12 W. L. Thomas, 1,650 ft. N and 150 ft. E of SE cor. of 300-ac. tract, Jessie Devore Sur.
Drlg. shale 5,137 ft.

G. R. Brown and S. F. Bashara's No. 1 David Hannah, Jesse Devore league, 100 ft. S line, 150 ft. E line, 42-ac. Gulf tract.
Derrick.

BUCKEYE—MATAGORDA COUNTY

United North & South Dev. Co.'s No. 1 Unit 4, Buckeye farm, J. C. Keller league, 214 ft. N line and 202 ft. E line of lease.
Cutting and pulling screen; T.D. 7,851 ft.

MARKHAM—MATAGORDA COUNTY

Hawkins Oil Co.'s No. 1 Hawks fee, 1,350 ft. from N line and 1,650 ft. from E line of 20-ac. lease.
T.D. 600 ft.; derrick down.

Powers Prod. Co.'s No. 4 Myers, in line with wells Nos. 1 and 2, being 250 ft. E of No. 2.
Derrick down.

CONROE—MONTGOMERY COUNTY

Texas Co.'s No. 13 W. S. Rhodes.
R.U. to W.O.

SPLENDORA—MONTGOMERY COUNTY

Bryce McCandless et al's No. 1 Texas Long Leaf Lbr. Co., 330 ft. from N and E lines of the W½ of Blk. No. 8, Walker County School Land Sur.
Bldg. derrick.

ORANGE—ORANGE COUNTY

Trio Oil Co.'s No. 1 D. S. Comier, 69 ft. W of E line and 39 ft. S of N line of 6.83-ac. tract in W. M. Dyson Sur.
Prepare to spud.

PORT NECHES—ORANGE COUNTY

Port Neches Pet. Corp. et al's No. 1 W. E. Organ, 450 ft. from NE line and 150 ft. from NW line of A. Schramm Sur., S of Port Neches Field.
Location.

Texas Co.'s No. 3-B Polk, 200 ft. S, 450 ft. W of SE cor. of Mary E. Hall Sur. No. 2.
Location.

Texas Co.'s No. 10 Kuhn, 200 ft. N, 450 ft. W of SE cor. of Mary E. Hall Sur. No. 2.
Rig up.

Texas Co.'s No. 6 Kuhn, 150 ft. E, 150 ft. N of SE cor. of Mary Hall Sur.
Drlg. lime 5,285 ft.

Texas Co.'s No. 8 Kuhn, 1,320 ft. N and 250 ft. E of SE cor. of Mary E. Hall Sur. No. 2 in T. J. Notgrass Sur.
T.D. 7,149 ft.; abd.

Texas Co.'s No. 9 Kuhn, 990 ft. N and W of SE cor. of Mary E. Hall Sur. No. 2.
Plugged at 7,204 ft.

LIVINGSTON—POLK COUNTY

T. D. Humphries' No. 1 J. C. Whitforth, Block H.
Derrick.

B. M. York et al's No. 1 Kingsbury County Holding Corp., 750 ft. SE of J. Z. Werby et al's No. 1 Dick and Faling.
Comp.; T.D. 4,347 ft.

B. M. York et al's No. 1 Kingsbury County Holding Corp., 463 ft. from E and W lines, and 330 ft. from S line of Tract No. 19, A. Viesca Sur.
Digging pits.

GRETA—REFUGIO COUNTY

Atlantic and Stanolind's No. 7-G O'Brien.
Derrick.

Hewitt & Daugherty's No. 13 Lambert.
Rig up.

Humble Oil & Ref. Co.'s No. 9 Fannie Heard, 933 ft. E of No. 7, 1,150 ft. S of No. 5.
T.D. 4,390 ft.; I.P. 120 bbls. per day; ¼-in. choke.

United Prod. Co.'s No. 10 Fannie Heard, SE cor. of lease; workover.
T.D. 3,565 ft.; perforated csg. from 3,535-65 ft.; ready to set liner.

United Prod. Co.'s No. 13 M. F. Lambert, C of N½ of Blk. 15 of the M. F. Lambert Subd.
Drlg. shale 3,260 ft.

United Prod. Co.'s No. 14 M. F. Lambert, C of S½ of Blk. 6, of M. F. Lambert Subd.
Drlg. shale and lime shells 2,828 ft.

United Prod. Co.'s No. 15 M. F. Lambert, C of S½ of Blk. 15 of M. F. Lambert Subd.
Drlg. sand 2,165 ft.

REFUGIO—REFUGIO COUNTY

Houston Oil Co.'s No. 1 Johnson, center of Blk. 63; (workover).
S.D. 5,140 ft.; preparing to pull tubing.
Houston Oil Co.'s No. 17 W. J. J. Heard, 660 ft. SE of No. 16 W. J. J. Heard.
Drlg. sand with oil and gas odor 4,930 ft.
Houston Oil Co.'s No. 17 Rooke, 600 ft. SW of No. 16 Rooke.
Drlg. sand with oil and gas odor 4,920 ft.
Humble O. & R. Co.'s No. 15 J. F. B. Heard.
T.D. 4,390 ft.; I.P. 123 bbls. per day; ¼-in. choke.
United Prod. Co.'s No. 8 J. A. Lambert, 853 ft. N of NW cor. of W. Heard tract and 150 ft. W of tract line, L. M. Rogers Sur.
T.D. 6,096 ft.; I.P. 200 bbls. pipe line oil per day; 41 gravity; ¼-in. choke; 225 lbs. working pressure; 4,500 lbs. shut-in pressure on csg.

COLETO CREEK—VICTORIA COUNTY

Rupert Cox's No. 1 Antone Trybil, R. Manchola Sur.
Derrick.
Albert Plummer's No. 2 Terrell, 693 ft. from NW line, 330 ft. NE line of 57-ac. tract, Manchola Sur.
Comp.; T.D. 4,400 ft.; I.P. 175 bbls. dly.
Albert Plummer's No. 1 Zimmer, 330 ft. NE and SE lines of lease in Manchola Sur.
Drlg. 5,200 ft.

McFADDIN-O'CONNOR DISTRICTS—VICTORIA AND REFUGIO COUNTIES

Humble O. & R. Co.'s No. 17 O'Connor, 933 ft. SW of No. 15, Keating Sur.
Drlg. shale 4,250 ft.
Humble Oil & Ref. Co.'s No. 2 McFaddin, C. O. Edwards Sur.
Abd. 6,001 ft.
Texas Co.'s No. 2 McFaddin, 9,150 ft. S and 300 ft. at R/A cut of NW cor. of C. M. B. Hoyt Sur.
T.D. 9,230 ft.; preparing to wash.
Texas Co.'s No. 9 McFaddin.
Location.

SAN FELIPE—WALLER COUNTY

DeArman Bros.' No. 1 Smith, 150 ft. from SW line, 150 ft. from SE line of 30-ac. tract, John McFarland Sur.
Abd. 3,436 ft.
Seaport Oil Co.'s No. 1 J. W. Avery, 330 ft. from E line, 330 ft. from N line of NE cor. of 29-ac. tract, John McFarland Sur.
Drlg. shale 2,223 ft.

CLAY CREEK—WASHINGTON COUNTY

Sun Oil Co.'s No. 3 R. L. Landry.
Drlg. anhydrite 1,232 ft.

LOUISE—WHARTON COUNTY

Pure Oil Co.'s No. 1 John Macha, 318 ft. from NW line and from SE line of F. Walnut Sur., and 467 ft. from NE line of 101.53-ac. lease, M.&C. Sur. No. 35.
Location.
Pure Oil Co.'s No. 1 G. F. Wharton Est., 1,497 ft. from SW line and 318 ft. from SE line of F. Walnut Sur., Abst. A-35.
Location.
Pure Oil Co.'s No. 2 Garratt, 990 ft. from NW and 330 ft. from NE of S cor. Sec. 28, T. W. Heard Sur.
T.D. 5,150 ft.; testing.
Pure Oil Co.'s No. 3 Stewart, Morris & Cummings Sur., Sec. 25, 990 ft. out of SW cor. of 160 acres.
T.D. 8,271 ft.; reaming at 8,190 ft.

SOUTH LOUISIANA FIELDS
BLACK BAYOU—CAMERON PARISH

Brownie Babbette Oil Co.'s No. 1 R. A. Moore, 562 ft. W, 50 ft. S of NE cor. of E½ of SE Sec. 18-12s-12w.
Abd. 6,928 ft.
Shell Pet. Corp.'s No. 3 State.
Coring shale 6,595 ft.
Shell Pet. Corp.'s No. 20 Watkins, 1,611 ft. S and 216 ft. W of NE cor. Sec. 18-12s-12w.
Reaming to set 9⅝-in. csg.; T.D. 4,024 ft.

BOSCO—ACADIA AND ST. LANDRY PARISHES

Superior Oil Prod. Co.'s No. 3 Comeaux, 1,324 ft. E of NW cor. NE Sec. 34.
Derrick.
Superior Oil Prod. Co.'s No. 2 Arceneaux, 1,968 ft. S and 1,708 ft. W of NE cor. of Sec. 33-8s-3e.
Drlg. shale 8,017 ft.
Superior Oil Prod. Co.'s No. 1 Herbert, 2,095 ft. S and 2,058 ft. E of NW cor. Sec. 35-8s-3e.
Drlg. sandy shale 4,447 ft.
Superior Oil Prod. Co.'s No. 5 Larcade, 1,665 ft. S and 483 ft. E of NW cor. Sec. 35-8s-3e.
Derrick.
Superior Oil Prod. Co.'s No. 2 Comeaux, 1,876 ft. S and 467 ft. W of NE cor. Sec 34-8s-3e.
Waiting on cmt. to set 8,901 ft.
Superior Oil Prod. Co.'s No. 1 B. Iseringhauser, 330 ft. S and 2,546 ft. W of SE cor. Sec. 27-8s-3e.
Derrick.
Superior Oil Prod. Co.'s No. 3 Iseringhauser, 1,617 ft. E, 330 ft. N of SW cor. Sec. 27.
Drlg. gravel.
Superior Oil Prod. Co.'s No. 1 Malancon, 375 ft. S and 63 ft. E of NW cor. SW Sec. 34-8s-3e.
Drlg. sand and shale 9,202 ft.
Superior Oil Co.'s No. 3 Larcade, 503 ft. N and 1,197 ft. E, SW cor. Sec. 34-8s-3e.
Running liner; T.D. 8,692 ft.
Superior Oil Co.'s No. 4 Larcade, 658 ft. S and 2,292 ft. E from NW cor. of Sec. 35-8s-3e.
Drlg. hard sand 7,316 ft.
Superior Oil Prod. Co.'s No. 1 Prejan, 324 ft. N, 330 ft. E of SW cor. NE Sec. 34.
Derrick.
Superior Oil Prod. Cor.'s No. 1 Lucien Lavergne, 590 ft. E and 330 ft. N of SW cor. of Sec. 27-8s-3e.
T.D. 8,736 ft.; P.B. 7,000 ft.; crooked hole.
Superior Oil Prod. Co.'s No. 1 Moise Lavergne, 249.7 ft. W and 98 ft. N. of SE cor. of Sec. 28-8s-3e.
Derrick.
Superior Oil Prod. Co.'s No. 1 Trahan, 1,392 ft. N, 543 ft. W of SE cor. Sec. 27. Tested S.W. at 7,849 ft.; drlg sandy lime 8,071 ft.; to make electrical coring test 7,851 ft.
Superior Oil Prod. Co.'s No. 3 Hermandes, 329 ft. from S line, 669 ft. W of NE cor. NW Sec. 34-8s-3e.
Drlg. sand 7,719 ft.
Superior Oil Prod. Co.'s No. 2 Iseringhauser, 689 ft. from W line, 330 ft. from N line of 31.86-ac. tract, Sec. 35-8s-3e.
7-in. csg. 8,642 ft.; I.P. 917 bbls. in 24 hrs.; csg. pressure 2,500 lbs.; tubing pressure 1,900 lbs.; T.D. 8,664 ft.

CAMERON MEADOWS—CAMERON PAR.

Burton-Sutton's No. 1 School Land.
Drlg. shale 4,196 ft.
Burton-Sutton Oil Co.'s No. 4 School Land. 1,891 ft. W and 150 N of SE cor. of Sec. 16-4s-13w.
Derrick.
Texas Co.'s No. 1 Miami Corp.
Drlg. shale 7,705 ft.

EDGERLY—CALCASIEU PARISH

Emerson Oil Co.'s No. 1 Bright-Penn.
Drlg. 3,765 ft.
Emerson Oil Co.'s No. 2 Yount Lee, 300 ft. S, 150 ft. W of NW cor. NE cor. SW Sec. 28-9s-8w.
T.D. 3,763 ft.; flowing wild; making 2,000 bbls. per day.

STARKS—CALCASIEU PARISH

Gulf Prod. Co.'s No. 36 Lutcher-Moore, 1,466 ft. S and 1,816 ft. E of NW cor. Sec. 19-9s-12w.
Drlg. salt 4,091 ft.

DOG LAKE—TERREBONNE PARISH

Texas Co.'s No. 11 State, 150 ft. N and 2,474 ft. W, SE cor. Sec. 31-21s-16e.
Building derrick.
Texas Co.'s No. 15 State, 2,602 ft. N and 1,308 ft. W, SE cor. Sec. 31-21s-16e.
Drlg. shale 4,603 ft.

GUEYDAN—VERMILLION PARISH

Pure Oil Co.'s No. 6, Alliance Trust, 667 ft. E, 1,787 ft. S line of lease, Sec. 34-11s-1w.
Fishing 9,379 ft.

HACKBERRY—CAMERON PARISH

Gulf Prod. Co.'s No. 16 Irwin, 770 ft. from N line, 800 ft. from W line, SE cor. Sec. 12-12w-10s.
Drlg. gumbo 2,220 ft.
Texas Co.'s No. 13-B State, 400 ft. N of NE cor. of lease, Sec. 13-12s-10w.
Drlg. shale 4,930 ft.
Calcasieu Oil Co.'s No. 39 Watkins, 807 ft. W, 1,184 ft. N of SE cor. Sec. 18-12s-10w (workover).
Drlg. sandy shale 2,878 ft.
Texas Co.'s No. 14 State, 500 ft. SE of No. 12, Sec. 13-12s-10w.
Location.
Union Sulphur Co.'s No. 1 Barbee est., 1,730 ft. N line, 330 ft. E of SW cor. Sec. 13-12s-10w.
Drlg. sand with hard streaks 6,146 ft.
Union Sulphur Co.'s No. 4 Humble, 710 ft. N and 830 ft. W of SE cor. Sec. 11-12s-10w.
Fishing; hard lime 5,122 ft.
Yount Yee Oil Co.'s No. 1-A Gulf Land, 2,000 ft. S and 50 ft. E of the NW cor. of Sec. 22-12-10.
Rig up.
Yount Lee Oil Co.'s No. 4 Carter, 160 ft. S, 305 ft. W of NE cor. of 30-ac. lease. Sec. 22-12s-10w.
No report.
Yount Lee Oil Co.'s No. 2-A Gulf Land. 1,100 ft. S and 50 ft. E of the NW cor. of Sec. 21-12-10.
Rig up.
Yount Lee Oil Co.'s No. 15-A Gulf Land, 1,100 ft. S and 715 ft. W of the NE cor. of the SW of Section 16-12-10.
Drlg. sand 4,004 ft.; no report.

NEW IBERIA—IBERIA PARISH

I. Delcambre's No. 1 Viatar, 150 ft. E, 150 ft. S and 150 ft. W of SE cor. of tract, Sec. 41-12s-6e.
S.D. 245 ft.
Harrison & Abercrombie's No. 2 Schwing, beginning at E cor. of Sec. 24-12s-8w, thence southwesterly along section line 3,054 ft., thence NW at R/A 1,121 ft.
Drlg. hard rock 4,035 ft.
Texas Co.'s No. 1 Hanzen, NE along NW line of lease 508 ft., thence 150 ft. E at R/A, Sec. 54-12s-7e.
Location.

IOWA—CALCASIEU AND JEFF DAVIS PARISHES

Magnolia Pet. Co.'s No. 10 Walt, 330 ft. N and E of SW cor. of lease.
Set 7-in. csg.; T.D. 6,942 ft.
Shell Pet. Corp.'s No. 12 Hyde, 330 ft. W, 330 ft. S of NE cor. NW Sec. 13-9s-7w.
Drlg. sand and gravel 317 ft.
Shell Pet. Corp.'s No. 11 Hyde, 330 ft. E and S of NW cor. NE Sec. 13-9s-7w.
Cmtd. 10¾-in. csg. at 1,317 ft.; T.D. 1,319 ft.
Shell Pet. Corp.'s No. 5 Stratford, 1,094 ft. S, 330 ft. E of NW cor. of Sec. 18.
Coring sandy shale 6,967 ft.
Shell Pet. Corp.'s No. 10 Hyde.
Drlg. shale 5,273 ft.
Shell Pet. Corp.'s No. 3 Tuten, 1,159 ft. W and 330 ft. from S of NE cor. SE Sec. 13-9s-6w.
Prepare to set 7-in. csg.; T.D. 6,649 ft.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 14 Housierre-Latricle, 260 ft. N of No. 12, Sec. 47-9s-2w.
Drlg. shale 6,537 ft.

LAKE BARRE—TERREBONNE PARISH

Texas Co.'s No. 11 L.L.&E., Sec. 20-21s-20e.
Drlg. anhydrite 3,510 ft.
Texas Co.'s No. 12 L.L.&E.
Drlg. shale and sand 4,294 ft.

LAKE HERMITAGE—PLAQUEMINES PARISH

Humble O. & R. Co.'s No. 2 LaFourche Basin Levee Dist.
Drlg. shale 5,410 ft.

LAKE PELTO—TERREBONNE PARISH

Whitstone O. & G. Co.'s No. 1 Buckley, 300 ft. S and E of NW cor. SW SW Sec. 25-19s-16e.
T.D. 3,053 ft.; tested gas on a D.S. test; prepare to set csg.

LAKE WASHINGTON—PLAQUEMINES PARISH

Humble O. & R. Co.'s No. 23 Cockrell-Moran, 650 ft. N and 21 deg. 30 min. E of No. 1 in Twp. 20s-26e.
Drlg. shale 3,941 ft.

LEESVILLE—LAFOURCHE PARISH

Emerald Pet. Co.'s No. 7 State of Louisiana.
Drlg. shale 2,300 ft.
Gulf Prod. Co.'s No. 2 Allen.
Drlg. shale 4,512 ft.
Gulf Prod. Co.'s No. 5 Allen.
Derrick.
Gulf Prod. Co.'s No. 10 Bernard, 1,833 ft. E, 958 ft. S of NW cor. Sec. 26-21s-22e.
Derrick.
Gulf Prod. Co.'s No. 2 Community, 50 ft. W and 1,300 ft. E of NW cor. Sec. 26-21s-22e.
Derrick.
Gulf Prod. Co.'s No. 8 Bernard, 568 ft. E along S line of 5.05-ac. tract from SW cor. and 446 ft. N at right angles, Sec. 26-21s-22e.
Drlg. sandy shale 2,638 ft.
Emerald Pet. Co.'s No. 8 State of La., 455 ft. N of No. 1.
T.D. 3,746 ft.; I.P. 1,200 bbls.; comp.
Emerald Pet. Co.'s No. 10 State, west bank, 300 ft. S of well No. 1.
Location.
Emerald Pet. Co.'s No. 11 State, east bank, 227 ft. N of well No. 1.
Location.
Emerald Pet. Co.'s No. 12 State, east bank, 350 ft. S of well No. 1.
Location.
Frank L. Hill's No. 1 Bernard, 1,422 ft. N and 808 ft. E of SW cor. Sec. 26-21s-22e.
S.D. 2,670 ft.
Leesville Oil & Gas Co.'s No. 1 Southern Louisiana Canal Navigation Co., 25 ft. W of Bank of Bayou, 15 ft. N of S bank, Sec. 26-21s-22e.
S.D. 4,189 ft.
Texas Co.'s No. 21 L.L.&E., Sec. 26-21s-22e.
Drlg. sandy shale 4,364 ft.
Texas Co.'s No. 28 L.L.&E.
T.D. 3,916 ft.

LOCKPORT—CALCASIEU PARISH

Magnolia Pet. Co.'s No. 12 Bordages, 966 ft. W and 93 ft. N of SE cor. N½ NE Sec. 8-10s-19w.
Running tubing 6,568 ft.
Union Sulphur Co.'s No. 1 Moss (W.O.).
Drlg. sandy shale 4,542 ft.

PORT BARRE—ST. LANDRY PARISH

Gulf Prod. Co.'s No. 8 Wilson Cochran, 568 ft. E along S line of L. Bernard 5.08-acre tract from SW cor. of Sur., 446 ft. N at right angles to said line, being 400 ft. N of line drawn through No. 1 and No. 3, Sec. 26-22s-12e.
Drlg. sand 3,146 ft.; slight show of oil.

ROANOKE—JEFFERSON DAVIS PARISH

Humble O. & R. Co.'s No. 1 Taylor, 440 ft. E and 440 ft. S of NW cor. SW Sec. 13-9s-4w.
Drlg. shale and lime 2,062 ft.
Humble O. & R. Co.'s No. 1 R. C. Jarnegan, 440 ft. S, 440 ft. E of the NW cor. SE Sec. 12-9s-4w.
Drlg. sand 2,095 ft.
Humble O. & R. Co.'s No. 2 Devilbiss, 1,320 ft. W, 466 ft. S of NE cor. Sec. 14-9s-4w.
Drlg. shale and lime 8,775 ft.
Shell Pet. Corp.'s No. 1 Jarnigan, 330 ft. E, 660 ft. S, NW cor. Sec. 12-9s-4w.
Coring shale 9,091 ft.

SORRENTO—ASCENSION PARISH

Union Sulphur Co.'s No. 26 United Land.
Drlg. hard shale 5,640 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 806 fee.
Drlg. sandy shale.
Union Sulphur Co.'s No. 790 fee, 929 ft. S and 802 ft. W of C Sec. 29-9s-10w.
Drlg. shale and lime 4,454 ft.
Union Sulphur Co.'s No. 795 fee.
Comp.; T.D. 5,550 ft.; I.P. 45 bbls. per day on pump.
Union Sulphur's No. 2 Uldrick, 500 ft. N of No. 1.
Drlg. sandy lime 3,301 ft.
Union Sulphur's No. 803 fee.
Drlg. shale 2,641 ft.
Union Sulphur Co.'s No. 2 Kelly, 1,345 ft. S, 198 ft. W of the NE cor. of Sec. 30-9s-10w.
Drlg. salt 5,819 ft.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 12 Yount Lee fee, 300 ft. S of No. 11, in line with Nos. 9 and 10. Sec. 12-12-3w.
S.D. 7,430 ft.

VINTON—CALCASIEU PARISH

Marrs McLean's No. 15 F. H. Gray, 342 ft. N and 338 ft. E of SW cor. Sec. 33-10s-12w.
Coring hard sand 2,585 ft.
Vinton Oil Co.'s No. 1 J. G. Gray, 230 ft. from N line and 545 ft. from E line of SE NE Sec. 4-11s-12w.
T.D. 3,730 ft.; prepare to P.B.
Wilson Broach's No. 7 Wilson (W.O.), Sec. 33-10s-12w.
Waiting on cmt. to set 3,582 ft.

WHITE CASTLE—IBERVILLE PARISH

Shell Pet. Corp.'s No. 9 Wilburn, 300 ft. E of No. 7.
Waiting on cmt. to set 7,044 ft.

MISCELLANEOUS WILDCATS
TEXAS
ANGELINA COUNTY

Thayer et al's No. 1 Dearmond, J. T. Peavy Sur., 2½ miles SE of Zavalla.
Hard lime 1,915 ft.; T.D.

AUSTIN COUNTY

J. S. Wheeless et al's No. 1 Lewis Wittenburg, 330 ft. S and 1,100 ft. from W line of 202.5-ac. tract, Sec. 179, H.&T.C. Sur.
Prepare to drill plug 492 ft.

BRAZORIA COUNTY

Amerada Pet. Corp.'s No. 1 Houston Farm Dev. Co., 1,414 ft. N, 316 ft. W of SE cor. of L. Bachelder Sur.
T.D. 7,663 ft.; shale; P.B. to 7,172 ft.
C.&R.G. Drlg. Co.'s No. 1 Frank Trukes, 300 ft. from S and 1,000 ft. from E lines of 75-ac. tract, Sec. 7, H.T.&B.R.R. Sur.
S.D. 7,890 ft.
Holt et al's No. 1 Griffith, J. B. Bailey Sur.
T.D. 4,200 ft.; waiting orders.
McCarthy Oil Co.'s No. 1 National Life Insurance Co., 300 ft. S of N line of Blk. 3 and 466 ft. E of W line of E½ of H. Austin League No. 4.
Abandoned.
Stanolind Oil & Gas Co.'s No. 1 J. W. Surface, 466 ft. N and 400 ft. W of most easterly SE cor. of 75.9-acre tract, A.C.H. &B. Sur., Abstr. 462.
Drlg. shale 3,250 ft.
Turnbull & Irwin's No. 1 Sutherland & Buck, 330 ft. from N and S lines and 150 ft. from W line of 40-ac. tract, A. Robinson Sur.
Drlg. shale 4,250 ft.

CALHOUN COUNTY

Continental Oil Co.'s No. 1 American Nat. Realty Co., C of NE of Sec. 6, Blk. C.
T.D. 7,119 ft.; trying to pull 5½-in. csg.
Steen Drlg. Co.'s No. 1 Stansel, 500 ft. along N line from NW cor., thence 350 ft. at R/A of 371.3-ac. tract, A. E. Parsa Sur.
Running 7-in. csg.; T.D. 6,168 ft.

CHAMBERS COUNTY

Humble O. & R. Co.'s No. 1 Middleton, 466 ft. each way out of the SW cor. of survey.
Rigging up.
Sun Oil Co.'s No. 1 Hamilton 1,400 ft. from N line, 1,400 ft. from W line of survey T.&N.O. Sur., Sec. 128.
Drlg. shale 3,740 ft.

COLORADO COUNTY

Coyle-Concord Oil Co.'s No. 1 Nelson, 3,300 ft. SE of NW cor. of Sec. 2,200 ft. SW at right angles in L.&G.N. Sur.
S.D. 6,194 ft.

FORT BEND COUNTY

Benedum & Trees' No. 1 Jacob Hensler, Charles D. Sayers Sur.
Drlg. shale 1,832 ft.
W. A. Shafer et al's No. 1 V. B. Bortash, 693 ft. SW of NE line and 1,003 ft. NW of SE line of Sec. 52, H.&T.C. Sur.
S.D. 2,900 ft.
Vico Oil Co.'s No. 1 H. R. Darst, 5,690 ft. N of S line and 685 ft. W of E line of E. Powell Sur.
Coring shale 4,602 ft.

GALVESTON COUNTY

Gillock Pet. Co.'s No. 2 Maco Stewart, 900 ft. N and 150 ft. W of No. 1, Alex Farmer Sur.
T.D. 1,500 ft.; waiting on surface pipe: S.D.
H. E. Sedberry, trustee's No. 1 Thomas Shaw (200 acres), 150 ft. NW line, 165 ft. NE line, Lot 66, Sec. 7, Hall & Jones Galveston Island.
S.D. 53 ft.
Humble O. & R. Co.'s No. 1-B Stewart, 415 ft. S of Dickinson Bayou, 460 ft. E of E line of Blk. 16, Beatty Subd., John Sellers Sur.
To reset screen; T.D. 8,024 ft.
Pure Oil Co.'s No. 1 J. W. Shelor (231.2 acres), 2,760 ft. S of Dickinson-San Leon highway and midway E and W lines of lease, B.B.B.&C. Sur.
T.D. 7,986 ft.; sand and shale; to make electrical coring test.

GRIMES COUNTY

Hubert Holt et al's No. 1 Simon Fuqua, 1,200 ft. N of S line and 400 ft. W of E line of 177-ac. lease and survey, Moses Evans Sur.
No report.
Dr. Marshall et al's No. 1-B Todd, 300 ft. from E line and 175 ft. from N line of 150-ac. tract in extreme NW cor. of county (25 ft. N of No. 1).
Drlg. 1,350 ft.

HARDIN COUNTY

Kirby Pet. Co.'s No. 1 Southwest Settlement & Development Co., 1,450 ft. W of E line and 330 ft. S of N line of Sec. 226, H.&T. C. Sur.
Abd. 5,648 ft.
Esco Oil Co.'s No. 1 E. P. Seureau, 3,232 ft. from W line and 2,215 ft. from S line of 350-ac. tract, W. P. Harris Sur., Abst. A-30.
Rig up.
T. S. F. Oil Co.'s No. 1 J. B. Hine, Arthur McCormick Sur., Abst. 46.
Derrick.

HARRIS COUNTY

American Liberty Oil Co.'s No. 1 Sweeney Sec., 17, W.C.R.R. Sur.
Abd.; T.D. 6,716 ft.
C. B. Bunte, Inc.'s No. 1 Laura Lackner, 6,400 ft. from E line, 194 ft. from S line of Henry Reinerman Sur., near NW city limits of Houston.
Cmtd. 7-in. csg.; T.D. 7,695 ft.
C. C. Foster and others' No. 1 H. K. Johnson, 2,000 ft. from S line and center of E and W lines of G.C.&S.F. Sur.
Drilled 25 ft. and S.D.
W. U. Paul's No. 1 E. M. House, 2,200 ft. N and 1,000 ft. E of NE cor. of E. Benson Sur. in M. Magruder Sur.
Prepare to start up; T.D. 4,122 ft.

JACKSON COUNTY

Atkins & O'Neil's No. 1 Hodges, C Sec. 22, Blk. 1, L.&G.N. Sur.
Moving in material.
Humble O. & R. Co.'s No. 1 Lowrance, 660 ft. from SW and SE lines of Wilson Sur. No. 5.
Drlg. sand 4,508 ft.

JEFFERSON COUNTY

Magnolia Pet. Co.'s No. 1 E. Herbert Trust, 990 ft. N, 330 ft. E of SW cor. of P. M. Bell Sur. No. 2.
Coring shale 9,488 ft.
Sun Oil Co.'s No. 1 H. Long, 1,500 ft. E line, 990 ft. E line of lease.
T.D. 8,407 ft.; set 7-in. csg. at 8,401 ft.; W.O.C.

LIBERTY COUNTY

R. M. Bruner et al's No. 1 N. Bell, 150 ft. from N line and 150 ft. from W line of

Bell's 187-ac. tract, H.&T.B. Sur. No. 4.
Rigging up.
Extension Oil Co.'s No. 1 J. A. Lovett, 280 ft. from E and 600 ft. from S line of lease, P. P. Deevers Sur.
S.D. 3,593 ft.
Liberty-Independent Oil Co.'s No. 1 J. M. Neal, 3,550 varas from E line and 500 varas from N line of Samuel Strong Sur.
D.S. stuck; T.D. 3,130 ft.
A. L. Maxwell's No. 1 M. D. Hinchlift, ... ft. from E line and 1,000 ft. from N line of H.&T.C. Sur. No. 150.
Location.
Thomas et al's No. 1-A Eicke, 660 ft. from W line and 2,350 ft. from S line of tract in Green Sur.
T.D. 5,047 ft.; 6¾-in. csg. at 5,029 ft.
Turnbull and Irwin's No. 1 Lynott and Buffum, 466 ft. S and E of NW cor. of SE 100 acres of W 400 acres of 856-ac. tract, James Robeson Sur.
Coring 7,390 ft.

MADISON COUNTY

Sunray Oil Co.'s No. 1 Ferguson, 1,000 ft. S and 750 ft. E of SE cor. of Francis Fulcher Sur.
Moving in material.

MATAGORDA COUNTY

Continental Oil Co.'s No. 1 Robbins, J. C. Franz Sur.
T.D. 6,995 ft.; S.D. 6,625 ft.
Dr. Griffith's No. 1 fee, 3,000 ft. from N line and 3,000 ft. from W line of Wm. B Bell Sur.
Rig up and S.D.

MONTGOMERY COUNTY

Reynolds Drlg. Co. et al's No. 1 Mrs. Clara B. Stewart, 330 ft. S and E of most easterly Inner cor. of 595-ac. tract, John Corner Sur.
Moving in material.

ORANGE COUNTY

Sine Line Oil Co.'s No. 1 Godwin, Richard Ballew Sur., 300 ft. from E line and 150 ft. from NE line of Godwin 20-ac. tract.
S.D. 2,703 ft.

POLK COUNTY

Howard Dailey et al's No. 1 Z. B. Knox, 1,450 ft. W and 1,920 ft. S of NE cor. of F. Chairs Sur., 1½ miles NE of Corrigan.
S.D. 60 ft.
J. F. Anderson's No. 1 E. L. Duke (O.W.D. D.), 400 ft. from E and 350 ft. from S of SW cor. of P. Michelick 50-ac. lease, Abst. 10, P. J. Mineral Sur.
Waiting on a new mud pump; T. D. 5,804 ft.
Dick Schwab's No. 1 Lynch, 330 ft. out of NW cor. of 200-ac. tract in the George Jameson Sur.
Location.

REFUGIO COUNTY

Cecil Hagen et al's No. 1 Edith Clarkson, 1,736 ft. from N line, 3,820 ft. from E line of J. Coughlin Sur.
Location.
Conroe and Santa Clara Oil Co.'s No. 1 Ella West, west part of county, near Blanco River.
Drlg. 4,300 ft.
Dale Sneed's No. 1 Peck, 366 ft. N and W out of NW and SW of Bonnie View Subd.
S.D. 6,626 ft.
Quintana Oil Co.'s No. 3-A O'Connor, 396 ft. from SW line, 1,107 ft. from SE line of Swisher Sur.
Drlg. 5,361 ft.

TRINITY COUNTY

Boone Bros.'s No. 1-C Texas Long Leaf Lbr. Co., 900 ft. due N of NE cor. of A. Henry Sur., Abstract 255.
Spudded.

VICTORIA COUNTY

Devonian Oil Co.'s No. 1 J. M. Fagan, Peter Teal League, Abst. 112, 9,000 ft. from N line, 466 ft. W of E line.
Abd. 6,010 ft.
Texas Co.'s No. 1 E. B. Potthast, N 50 deg. E, 850 ft. S, 35 deg E, 850 ft. from W cor. of lease, T.&N.O.R.R. Sur., Sec. 11.
Abd. 3,075 ft.
Texas Co.'s No. 1 Thompson Bros. Lbr. Co., beginning at NW cor. of survey on Trinity River, thence N 55 deg., E 2,640 ft. S 35 deg., E 7,111 ft.
Rig up.

WALKER COUNTY

S. P. Kilgore et al's No. 1 Lamkin, 330 ft. from S line and 330 ft. from E line of Lamkin 1,000-acre tract in J. J. Holcomb Sur.
No report.

WALLER COUNTY

Stanolind O. & G. Co. et al's No. 1 J. W. Tharp, 466 ft. from S and E lines of J. M. Bennett Sur. No. 100.
Rig up.

WHARTON COUNTY

Whitehead and Rash's No. 1 C. T. and D. Kountze, 1,320 ft. from N line, 330 ft. from E line of S.A.&M.G. Sur., Sec. 1, Abst. 328.
Location.

SOUTH LOUISIANA
ACADIA PARISH

Humble O. & R. Co.'s No. 1 American Rice Mills, 660 ft. S and 1,320 ft. W from NE cor. Sec. 27-10s-1e.
Rig up.

ALLEN PARISH

Humble O. & R. Co.'s No. 1 Industrial Lumber Co., 1,320 ft. W line and 2,440 ft. S line Sec. 21-3s-5w.
Abd. 3,094 ft.

ASCENSION PARISH

Humble O. & R. Co.'s No. 2 S. Gumbel & Co., 500 ft. southwesterly from No. 1, 375 ft. easterly from road and approx. 475 ft. N of S line of tract, Sec. 33-10s-2e.
Drlg. shale 1,824 ft.

BEAUREGARD PARISH

Gulf Ref. Co.'s No. 1 Lutcher Moore, 660 ft. from S line, 760 ft. from E line, NE Sec. 25-6s-12w.
Drlg. shale 7,265 ft.
Richardson & Martin's No. 1 Southwest Lbr. Co., SW Sec. 4-6s-12w.
Location.

CALCASIEU PARISH

Fohs' No. 1 O. H. Castle, 330 ft. S and 330 ft. W of C Sec. 18-9s-3w.
Rig up.
Humble O. & R. Co.'s No. 1-B Industrial Lbr. Co., 466 ft. N, 1,399 ft. W of the SE cor. Sec. 27-8s-12w.
Drlg. sand 5,042 ft.
Union Sulphur Oil Co.'s No. 1 State Land, 1,940 ft. S, 2,513 ft. E of NW cor. Sec. 12-9s-8w.
Drlg. sticky shale 6,148 ft.
Wheeler Oil Co.'s No. 1 Gabbert, 1,322 ft. E and 548 ft. N of SW cor. of Sec. 28-9s-7w.
Drlg. 3,560 ft.

EAST FELICIANA PARISH

Thompson Creek Oil Co.'s No. 1 Fannie Noland, 2,600 ft. E and 1,580 ft. N of SW cor. Sec. 70.
Drlg. shale 1,175 ft.

EVANGELINE PARISH

Humble O. & R. Co.'s No. 1 Haas, 1,250 ft. SE of Bayou Nezpique, 466 ft. NE of SW line of Sec. 22-4s-1w.
Drlg. 5,065 ft.

CAMERON PARISH

Texas Co.'s No. 10-A State, 16,855 ft. W and 3,270 ft. N of NE cor. Sec. 1-14-9w in Twp. 13s-9w.
Drlg. shale 6,212 ft.
Texas Co.'s No. 1 Jesmen, 1,170 ft. E and 550 ft. N of C Sec. 24-14s-10w.
Rig up.

JEFFERSON DAVIS PARISH

George W. Strake's No. 1 Calcasieu Natl. Bank, 200 ft. S and E of NW cor. SE NE Sec. 12-9s-6w.
Drlg. shale 1,425 ft.

LAFOURCHE PARISH

Barnsdall Oil Co.'s No. 3 Harang Plantation. Sidetracked hole 5,285 ft.; drlg. sandy shale 6,105 ft.
S. L. Gay, trustee's No. 1 Godchaux, 1,320 ft. N and 1,746 ft. E in common cor. of Lots 34 and 36, Twp. 15s-19e.
S.D. 6,226 ft.
Southern Sulphur Corp.'s No. 1 D. L. Lagraize, 800 ft. E of NW cor. of Lot 7, thence 250 ft. S of Sec. 26-21s-22e.
Spudded and S.D.

PLAQUEMINES PARISH

Texas Co.'s No. 12 State-Garden Island Bay, Sec. 107-23s-32e.
Set 21½-in. csg. at 102 ft.; to D.D.; T.D. 1,748 ft.
Venice Corp.'s No. 1 Burras.
Drlg. rock 1,585 ft.

RAPIDES PARISH

J. B. Evers' No. 1 G. Wettermark, 540 ft. S and 520 ft. E, NW cor. NE SW Sec. 35-6n-2e.
Location.
C. D. Loe's No. 1 Barrett, 330 ft. NW of SE line and 880 ft. NE of SW line of Sec. 40-5n-1w.
Rig up and S.D.

ST. BERNARD PARISH

Danciger's No. 1 Battles, 826 ft. N, 1,188 ft. W of SE cor. Sec. 135-14s-14e.
Drlg. lime 5,876 ft.

ST. LANDRY PARISH

Bailey Gaunce's No. 1 Lewis, 300 ft. N and E of SW cor. of NW of NE of Sec. 29-5s-6e (workover).
Reaming to bottom 5,043 ft.
H. J. Weir's No. 1 Decloust, Sec. 108-8s-5e, near Lafayette Parish line and 3 miles N of Anse La Bute Field.
S.D. 2,322 ft.

ST. MARTIN PARISH

Texas Co.'s No. 6 St. Martin Land Co., 660 ft. S and 500 ft. W of NE cor. SE Sec. 17-8s-7.
Drlg. shale 9,559 ft.

VERMILLION PARISH

Moore Bros.' No. 1 Brussard, 350 ft. S of N line, 350 ft. E of W line, NE cor. Sec. 32-11s-3e.
T.D. 4,056 ft.; fishing.

La.-Ark. Wildcats

(Continued from Page 72)

Missouri Drlg. Co.'s No. 1 Brown Lbr. Co., 400 ft. N, 330 ft. W, SE cor. Sec. 5-10-10.
S.D. 1,033 ft.
Roy A. Raines et al's No. 1 Raines est., 330 ft. N and E, SW cor. Sec. 8-9-10.
S.D. for water 2,606 ft.

OUACHITA PARISH

Hamilton Gas Co.'s No. 1 Parker, 557 ft. S, 473 ft. W, NE cor. Sec. 2-19-3e.
Drlg. 1,600 ft.
James A. Noe's No. 1 Wall, 184 ft. S, 1,872 ft. E of C Sec. 25-19-3e.
S.D. 490 ft.

RAPIDES PARISH

Evans & Collingsworth's No. 1 Hickman, 330 ft. S and E, NW cor. Sec. 40-4-1e.
Dry and abd. 2,130 ft.
C. D. Loe, trustee's No. 1 Baird Est., SE cor. Sec. 40-5n-1w.
Rigging up.

RED RIVER PARISH

Louis L. Glass' No. 1 Dickson, 400 ft. S and W, NE cor. SE Sec. 32-12-8.
S.D. 1,030 ft.
C. M. Cope et al's No. 1 Thomas, 330 ft. S and E, C Sec. 34-13-3.
S.D. 2,375 ft.; (corrected).
O. K. Oil Co.'s No. 1 Franklin Realty Co., 100 ft. N and E, SW cor. SE SW Sec. 32-11-9.
Set 5 3/16-in. 1,166 ft.
Windsor Oil Co.'s No. 2 Jenkins, 1,980 ft. S and E, NW cor. Sec. 14-13-11.
Drlg. 2,570 ft.

SABINE PARISH

H. J. Brothers et al's No. 1 Edwards, 300 ft. S. and W. NE cor. SW NW Sec. 29-9-13.
Testing 1,867 ft.
R. B. Campbell et al's No. 1 Cook Land Co., 150 ft. N, 300 ft. W, SE cor. NW NW Drlg. 2,028 ft.
Tested dry after acid; S.D.; W.O. 1,925 ft.
Erle P. Halliburton's No. 3 Burkett, 330 ft. N and W, SE cor. SW SE Sec. 9-9-13.
W.O.S.R. 2,044 ft.
Helena O. & G. Co.'s No. 2 Heard, 330 ft. S and E, NW cor. NW NE Sec. 16-9-13
Comp.; pumping 100 bbls., 2,056 ft.
Helena Oil & Gas Co.'s No. 1-B Graham, 330 ft. S and W NE cor. NE NW Sec. 29-9-13.
Pumping S.W. 2,000 ft.
L. D. Higgins' No. 2 Burkett, 330 ft. S and E, NW cor. NE NE Sec. 16-9-13.
W.O.S.R. 2,035 ft.
Lawson-Leavell's No. 1 Whitney Corp., 330 ft. N and E, SW cor. NE SW Sec. 5-9-13.
Treating with acid 2,086 ft.
Zan Lloyd's No. 1 Henderson, 330 ft. N and W, C Sec. 29-9-13.
W.O.S.R. 2,031 ft.
Dr. O. B. Hicks' No. 1 Neal, SE SW SE Sec. 18-9-13.
Set 10-in. 40 ft.

TENSAS PARISH

Schumacher, tr.'s No. 1 Curry, Sec. 39-11-12e.
Arranging to deepen 3,750 ft.

UNION PARISH

Carbons Consolidatec's No. 1 Beasley, 1,050 ft. S, 150 ft. E, NW cor. Sec. 6-21-4e.
Rigging up.

ARKANSAS
ARKANSAS COUNTY

Grand Prairie Realty Co.'s No. 1 Fischer, 200 ft. S and E, NW cor. NE NW Sec. 6-8s-4w.
S.D. 450 ft.

COLUMBIA COUNTY

F. E. Galbreath's No. 1 Pearce, 330 ft. S and W, NE cor. NW Sec. 7-17-20.
Drlg. 3,336 ft.

HEMPSTEAD COUNTY

Ark. Drlg. Co.'s No. 1 Jones, 1,000 ft. S, 600 ft. W, NE SE Sec. 11-14-24.
Coring 2,875 ft.
B. A. Austin's No. 1 McWilliams, 300 ft. N and W of SE cor. NW SW Sec. 19-13-23.
S.D. for wtr. 2,000 ft.
A. H. Bagnelle's No. 1 Trattner & Rhinehart, Sec. 2-13-26.
S.D. 1,992 ft.
F. W. Martin & Co.'s No. 1 Lafferty, 500 ft. N and W SE cor. NW Sec. 17-14-24.
Fishing for D.S. 3,700 ft.

LAFAYETTE COUNTY

Benedum & Trees' No. 2 Bodcaw, C SE SE NE Sec. 19-16-23.
Drlg. 4,600 ft.
Douglas Lawn's No. 1 Camp, 330 ft. S and W, NE cor. SW SE Sec. 14-15-23.
S.D. 2,910 ft.
W. H. Harvey's No. 2 Allen, Sec. 18-19-24.
Rigging up.
A. H. Tarver's No. 1 Russell, 330 ft. S and W, NE cor. NW Sec. 12-17-25.
Coring 1,510 ft.

MILLER COUNTY

Duluth-Ark. Oil Co.'s No. 4 Beck, SE cor. SE SW Sec. 34-15-26.
Drlg. 2,558 ft.
Fitzwater et al's No. 1 Norson, SW cor. SE SW Sec. 20-15-27.
S.D. 3,177 ft.
Ark. Oil, Gas & Ref. Co.'s No. 1 Beck, SW cor. NW SW Sec. 34-15-26.
1,200 ft. oil in hole at 2,320 ft.
King Oil Corp.'s No. 1 C. H. Schroder, 200 ft. N, 330 ft. E, SW cor. SW NE Sec. 24-14-23.
Coring 2,910 ft.
Magnolia Pet. Co.'s No. 5 Olivet, Sec. 3-16-26.
W.O.S.R. 2,940 ft.
A. C. Roan's No. 1 Frost Est., 150 ft. N and W, SE cor. SE SW Sec. 8-15-26.
Set 10-in. 120 ft.
Lee Timberlake's No. 1 Frost Est., 330 ft. N and E, SW cor. SW SE Sec. 27-15-26.
Set 10-in. 200 ft.

NEVADA COUNTY

O. F. Whittaker's No. 1 Wesley, Sec. 2-15-20.
Sidetracking csg. 1,508 ft.; T.D. 2,092 ft.

OUACHITA COUNTY

F. A. Book et al's No. 1 Arnold, Sec. 24-15-16.
S.D. 2,032 ft.
T. J. Gaughan's No. 1 Bragg, 330 ft. N and E, SW cor. NE SE.
Set 10-in. 104 ft.

UNION COUNTY

Jovian Oil Corp.'s No. 1 Perdue, 150 ft. N, 650 ft. E, SW cor. NW SE Sec. 3-17-14.
Set 10-in. 132 ft.; drlg. 832 ft.
Mrs. R. K. Jones et al's No. 1 J. Davis, 320 ft. N and W, SE cor. NW NW Sec. 28-16-14.
Fishing for csg. 2,764 ft.
Lion Oil Ref. Co.'s No. 10-A Fienniken, 300 ft. N, 630 ft. E, C Sec. 10-16-15.
W.O.S.R. 2,408 ft.
Joe Modisette's No. 1 Union Saw Mill Co., 330 ft. S and W, NE cor. NW SE Sec. 14-18-14.
Rigging up.
Reuter Oil Co., Inc.'s No. 1 J. L. Kinard, 330 ft. S and E, NW cor. SE NW Sec. 32-18-14.
W.O.S.R. 2,189 ft.
S. H. A. Oil Co.'s No. 1 Townsend, 330 ft. N and E, SW cor. SW NE Sec. 10-17-14.
Rigging up.
Short & Hayes' No. 1 Taylor, 450 ft. E, 330 ft. S, NW cor. NW SE Sec. 10-17-14.
Comp.; flowing 866 bbls.; 3,366 ft.
Tubal Pet. Co.'s No. 1 Gaddy, 340 ft. N and E, SW cor. SE NW Sec. 14-17-14.
S.D.; W.O. 3,416 ft.

WOODRUFF COUNTY

L. P. Lively's No. 1 Perkins, 330 ft. N, 360 ft. E, SW cor. SE SE Sec. 5-5n-2w.
Rigging up.
J. N. Watkins et al's No. 1 Upshaw, 330 ft. N and E, SW cor. NW SW Sec. 17-5n-2w.
Rigging up.

MISSISSIPPI
AMITE COUNTY

Mineral Resources, Inc.'s No. 1 Anderson, C NE NW Sec. 14-2n-3e.
S.D. 550 ft.

BOLIVAR COUNTY

White & Jones' No. 1 Ballou, SE SE NW Sec. 17-24n-7w.
S.D. 20 ft.

GREENE COUNTY

United Gas Pub. Service Co.'s No. 1 Greene County School Land, W½ W½ Sec. 16-1n-5w.
Drlg. 2,985 ft.

HARRISON COUNTY

Big Ridge Oil Co.'s No. 1 Hinsin, NE Sec. 13-7s-10w.
Drlg. 985 ft.

ISSEQUENA COUNTY

Pelican Oil & Gasoline Co.'s No. 1 Martin & Bender, 300 ft. S and E, NW cor. Sec. 11-13n-8w.
Set 10-in. 200 ft.

JONES COUNTY

Snow-Black Pet. Co.'s No. 2 Watson, 530 ft. W, 200 ft. S, C Sec. 24-7n-13w.
T.A. 3,900 ft.

LAUDERDALE COUNTY

Bob Dalton's No. 1 Bounds, Sec. 34-7n-15e
Set 10-in. 560 ft.; S.D.; W.O.

MONROE COUNTY

P. J. McAlpine's No. 1 Frank Rye, Sec. 16-15s-17w.
Drlg. 2,100 ft.
P. J. McAlpine's No. 1 Crook, 1,090 ft. S. 90 ft. W, NE cor. Sec. 15-13s-18w.
Set 8-in. 730 ft.

SIMPSON COUNTY

Berry Corp.'s No. 2 R. T. Berry, Sec. 33-2n-4e.
Set 7-in. 2,048 ft.

WALTHALL COUNTY

Mutual O. & G. Co.'s No. 1 Boyd, SW cor SW SE Sec. 24-3n-9e.
Partly rigged up and S.D.

WASHINGTON COUNTY

Perkins & Dees' No. 1 Lee, 1,500 ft. E, 500 ft. N, SW cor. Sec. 33-15n-8w.
Set 10-in. 300 ft. and S.D.

WINSTON COUNTY

Jack Vale et al's No. 1 Moody, 718 ft. N. 667 ft. E, SW cor. NW SW Sec. 3-13n-14e
S.D. 20 ft.

La.-Ark. Proven Fields

NORTH LOUISIANA

CADDO—BLANCHARD

Louana-Pyramid's No. 1-A Wheeler, 660 ft. S and W of C Sec. 4-18-16.
Comp. 500,000 ft. of gas, 908 ft.
M. Segal's No. 2 Sharf, 330 ft. S and W NE cor. NW NW Sec. 11-18-16.
Comp. 1,500,000 ft. of gas, 942 ft.

CADDO—HOSSTON

Shoreline Oil Corp.'s No. 44 Crystal, 330 ft. S and E of C Sec. 13-21-16.
Derrick (corrected).

SABINE PARISH—ZWOLLE

Alexander & Cane's No. 1 Fogman, SE cor N½ SW NE Sec. 18-7-11.
Arranging set csg. 2,353 ft.
Ivan A. Allen's No. 1 La. Long Leaf, 330 ft. N and W, SE cor. NW SE Sec. 12-7-11.
S.D. for wtr. 2,120 ft.
Crichton & Co.'s No. 1 Williams, 660 ft. N and E, SW cor. SW SE Sec. 6-7-11.
Set 6-in. 2,345 ft.
Dyer et al's No. 1 McCollister, 330 ft. S and E, NW cor. SW NE Sec. 24-7-12.
S.D. 1,100 ft.
Foster & Hartman's No. 1 Bowman Hicks, 330 ft. S and E, NW cor. NE Sec. 10-7-12.
S.D.; W.O. 2,696 ft.
E. D. Holcomb's No. 1 Porter, 330 ft. S, 330 ft. W, NE cor. SE Sec. 7-7-11.
Pulling liner 2,580 ft.
H. C. Maulding's No. 1 Davis, 350 ft. N and W, SE cor. NE NE Sec. 2-7-11.
Rigging up.
H. C. Maulding's No. 2 DeLatin, 330 ft. S and E, NW cor. NE SE Sec. 3-7-11.
S.D. 2,250 ft.
Pelican Nat. Gas Co.'s No. 37 La. Long Leaf, 100 ft. S and E, NW cor. SE SE Sec. 8-7-11.
Drlg. 2,606 ft.
K. C. Peterson et al's No. 1 Bowman-Hicks, 330 ft. S and E, NW cor. SW NW Sec. 2-7-9.
Rigging up.
Texas Co.'s No. 1 H. E. Wilson, 330 ft. S and W NE cor. SE SE Sec. 21-8-11.
Dry and abd. 2,800 ft.
Tex.-La.-Ark. Oil Co.'s No. 1 Pickering Lbr. Co., Sec. 3-3-12.
Recmtd. 10-in. 134 ft.; T.D. 2,210 ft.

EAST TEXAS (BORDER COUNTIES)
CASS COUNTY

R. K. Kamon et al's No. 1 Savage, Mary Patterson Sur.
S.D. 4,016 ft.

HARRISON COUNTY

W. T. Boyd's No. 1 Rudd, John McWilliams Sur.
Rigging up.
R. C. Payne et al's No. 1 Lowery, E. D. Spain Sur.
P.B. to 3,524 ft.

PANOLA COUNTY

R. H. Davis' No. 1 Wooten Est., Winnie Mann Sur.
S.D. 2,093 ft.
Givens & Holloway's No. 1 Wooten est., Winnie Mann Sur.
S.D. 2,153 ft.
R. W. Price's No. 1 Crawford, J. A. Williams Sur.
Rigged up and S.D.
Fred Stovall Drlg. Co.'s No. 1 H. B. Ivey, P. Martin H.R.S.
S.D. for csg. 1,980 ft.

SHELBY COUNTY

Cliff Stovall's No. 1 Pickering Lbr. Co., C H. Patterson Sur.
S.D. 690 ft.
Turner & Neil's No. 1 Pickering Lbr. Co., P. W. Harvey Sur.
S.D. 250 ft.

ALABAMA
HOUSTON COUNTY

Rice O. & G. Co.'s No. 1 Oakley est., SE cor. NW SW Sec. 9-3n-29e.
S.D. 2,410 ft.

LAMAR COUNTY

DeSoto O. & G. Corp.'s No. 1 Gardner, Sec. 32-15s-16w.
S.D. 4,183 ft.

Summary of Operations in All Fields for October, 1934

SUMMARY OF WELLS COMPLETED

	Comp.	Prod.	Dry	Gas
Penna. Grade fields	293	653	39	36
Central Ohio	88	217	24	62
Lima	5	53	1	1
Indiana	7	155	3	0
Illinois	2	1	1	0
Kentucky	84	4,313	23	2
Michigan	41	8,641	15	3
Kansas	81	22,441	24	6
Oklahoma	140	54,781	43	8
North Central Texas	167	6,199	89	2
West Texas	53	25,901	21	0
Texas Panhandle	42	11,880	8	4
East Central Texas	367	18,776	16	2
East Texas	28	242	19	1
East Texas gas area	1	0	1	0
Gulf Coast, Texas	119	33,880	37	15
Southwest Texas	118	18,236	44	11
North Louisiana	34	372	16	10
Gulf Coast, Louisiana	42	26,821	11	0
Arkansas	9	610	4	0
Mississippi	1	0	1	0
Montana	23	1,713	4	4
Wyoming	7	3,315	3	1
Colorado	4	0	3	1
New Mexico	18	26,799	3	0
Total October	1,804	265,994	453	171
Total September	1,479	265,456	343	134
Difference	325	538	110	37

RIGS AND WELLS DRILLING

	Rigs	Drlg.	Ttl.
Penna. Grade fields	62	217	279
Central Ohio	40	137	177
Lima	4	33	37
Indiana	1	57	58
Illinois	0	15	15
Kentucky	1	16	17
Michigan	99	158	257
Kansas	38	173	211
Oklahoma	84	435	519
North Central Texas	56	227	283
West Texas	30	160	190
Texas Panhandle	31	108	139
East Central Texas	93	147	240
East Texas	20	43	63
East Texas gas area	5	14	19
Gulf Coast, Texas	45	115	160
Southwest Texas	47	157	204
North Louisiana	31	79	110
Gulf Coast, Louisiana	27	85	112
Arkansas	8	32	40
Mississippi	5	11	16
Alabama	1	2	3
Montana	7	54	61
Wyoming	9	81	90
Colorado	4	32	36
New Mexico	12	67	79
Utah	1	14	15
Total October	761	2,669	3,430
Total September	796	2,625	3,421
Difference	35	44	9

Oklahoma Fields

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Carter	2	0	2	0
Creek	21	799	7	3
Hughes	7	1,964	0	0
Jefferson	3	100	1	0
Johnston	1	0	1	0
Kay	2	78	0	0
Leflore	1	0	0	1
Lincoln	3	2,910	0	0
Logan	4	3,430	0	0
Marshall	5	53	0	0
Murray	1	0	1	0
Muskogee	1	0	1	0
Noble	2	1,342	0	0
Okfuskee	4	52	2	0
Oklahoma	3	2,419	1	0
Okmulgee	7	113	1	0
Osage	20	4,896	7	1
Pittsburgh	0	0	0	0
Pontotoc	13	16,438	5	1
Pottawatomie	10	2,387	4	0
Seminole	15	17,527	1	0
Stephens	7	258	3	1
Tulsa	8	15	6	1
Total Oct.	140	54,781	43	8
Total Sept.	101	51,248	26	3
Difference	39	3,533	17	5

Rigs and Wells Drilling

County—	Rigs	Drg.	Ttl.
Alfalfa	0	2	2
Atoka	0	12	12
Beckham	1	3	4
Blaine	0	1	1
Caddo	0	6	6
Carter		15	17
Choctaw	0	1	1
Cleveland	0	3	3
Coal	0	1	1
Comanche	0	7	7
Creek	6	45	51
Ellis	0	1	1
Garfield	0	3	3
Garvin	0	3	3
Grady	0	4	4
Grant	1	1	2
Greer	0	1	1
Harper	0	1	1
Hughes	1	9	10
Jackson	0	4	4
Jefferson	3	10	13
Johnston	0	1	1
Kay	0	1	1
Kingfisher	0	2	2
Kiowa	0	3	3
Leflore	0	1	1
Lincoln	2	9	11
Logan	1	11	12
McClain	0	1	1
McIntosh	0	1	1
Marshall	0	9	9
Murray	0	3	3
Muskogee	0	2	2
Noble	1	12	13
Okfuskee	9	12	21
Oklahoma	6	24	30
Okmulgee	1	20	21
Osage	19	51	70
Pawnee	0	3	3
Payne	0	2	2
Pittsburg	0	3	3
Pontotoc	11	47	58
Pottawatomie	12	40	52
Pushamataha	0	1	1
Seminole	6	28	34
Stephens	1	11	12
Texas	0	1	1
Tulsa	0	2	2
Washita	1	1	2
Total Oct.	84	435	519
Total Sept.	98	382	480
Difference	14	53	39

Kansas Fields

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Butler	5	188	2	1
Sedgwick	9	1,234	4	0
Reno	10	9,103	0	0
Stafford	4	1,417	1	0
Harvey	3	512	0	0
Greenwood	7	324	0	0
Woodson	1	0	1	0
McPherson	6	1,384	2	0
Barton	4	279	2	0
Rice	10	3,716	2	2
Morris	1	0	0	1
Chase	1	0	0	1
Russell	8	4,114	3	0
Elk	5	10	2	1
Kingman	1	0	1	0
Ellis	1	0	1	0
Sumner	1	0	1	0
Cowley	4	160	2	0
Total Oct.	81	22,441	24	6
Total Sept.	47	15,780	19	0
Difference	34	6,661	5	6

Rigs and Wells Drilling

County—	Rigs	Drg.	Ttl.
Clay	0	2	2
Rooks	0	1	1
Osborne	0	1	1
Osage	0	1	1
Russell	7	23	30
Trego	0	2	2
Ellis	0	1	1
Saline	0	1	1
Dickinson	0	1	1
Ellsworth	0	8	8
Washington	0	1	1
Barton	2	3	5
Rush	1	3	4
McPherson	6	23	29
Rice	6	24	30
Scott	0	1	1
Stafford	0	2	2
Harvey	1	8	9
Reno	4	21	25
Butler	3	11	14
Sedgwick	5	16	21
Greenwood	0	2	2
Kingman	1	2	3
Barber	0	1	1
Sumner	0	2	2
Elk	0	6	6
Cowley	2	6	8
Total Oct.	38	173	211
Total Sept.	33	160	193
Difference	5	13	28

East Central Texas Fields

Summary of Wells Completed

County—	Comp.	Prod.	Abd.	Gas
Anderson	5	216	1	1
Cherokee	4	78	3	0
Freestone	2	0	2	0
Gregg	181	11,007	4	0
Hunt	2	0	2	0
Lamar	1	0	1	0
Leon	1	0	1	0
Limestone	3	0	3	0
Morris	1	0	1	0
Navarro	1	0	1	0
Nacogdoches	1	0	1	0
Red River	1	0	1	0
Rusk	134	5,673	1	2
Smith	16	847	2	0
Upshur	32	1,172	6	0
Van Zandt	10	25	5	0
Total October	395	19,018	35	3
Total September	339	16,756	17	2
Difference	56	2,262	18	1

Summary of Rigs and Wells Drilling

County—	Rigs	S. D.	Dlg.	Ttl.
Anderson	7	0	5	12
Cherokee	2	4	4	10
Ellis	0	1	0	1
Fannin	0	1	0	1
Freestone	1	1	3	5
Gregg	46	0	70	116
Henderson	0	2	1	3
Hopkins	0	0	2	2
Hunt	1	3	0	4
Kaufman	0	1	0	1
Leon	0	0	1	1
Limestone	3	3	0	6
Morris	2	1	0	3
Nacogdoches	0	1	0	1
Navarro	0	4	2	6
Rains	1	1	1	3
Red River	1	0	0	1
Rusk	29	1	43	73
Smith	7	3	8	18
Upshur	9	0	14	23
Van Zandt	4	3	5	12
Wood	0	0	1	1
Total October	113	30	160	303
Total September	101	29	186	316
Difference	12	1	26	13

North Central Texas Fields

Summary of Wells Completed

County—	Comp.	Prod.	Abd.	Gas
Archer	74	4,198	30	0
Brown	3	80	0	0
Callahan	4	80	2	0
Clay	0	0	2	0
Coleman	5	5	3	1
Cooke	3	130	1	0
Eastland	3	15	2	0
Jack	9	0	9	0
Montague	4	450	1	0
Shackelford	9	151	2	0
Stephens	2	49	0	0
Throckmorton	6	0	5	1
Wichita	19	396	13	0
Wilbarger	6	0	6	0
Young	20	645	13	0
Total October	167	6,199	89	2
Total September	154	6,868	73	5
Difference	13	669	16	3

Summary of Rigs and Wells Drilling

County—	Rigs	S. D.	Dlg.	Ttl.
Archer	18	5	64	87
Baylor	0	1	0	1
Brown	1	2	4	7
Callahan	1	1	4	6
Clay	0	2	2	4
Coleman	1	1	8	10
Comanche	0	2	1	3
Cooke	3	5	2	10
Denton	0	1	0	1
Eastland	1	1	7	9
Erath	0	1	0	1
Fannin	0	0	1	1
Foard	0	0	3	3
Haskell	0	1	0	1
Hamilton	0	0	1	1
Jack	2	1	7	10
Johnson	0	1	0	1
Knox	0	1	0	1
Lampasas	0	1	0	1
Montague	3	0	7	10
Palo Pinto	0	2	5	7
Parker	0	0	1	1
Shackelford	1	2	10	13
Stephens	1	2	1	4
Stonewall	0	0	1	1
Throckmorton	0	4	2	6
Wichita	9	3	12	24
Wilbarger	3	2	11	16
Wise	1	2	0	3
Young	11	8	21	40
Total October	56	52	175	283
Total September	61	53	121	235
Difference	5	1	54	48

West Texas Fields

Summary of Wells Completed

County—	Comp.	Prod.	Abd.	Gas
Borden	1	0	0	0
Crane	1	40	0	0
Ector	11	5,870	0	0
El Paso	1	0	1	0
Fisher	6	2,589	2	0
Glasscock	2	1,652	0	0
Howard	11	4,046	2	0
Irion	1	0	1	0
Jones	5	0	5	0
Loving	3	129	1	0
Pecos	6	1,779	3	0
Reeves	2	0	2	0
Runnels	1	754	0	0
Scurry	1	0	1	0
Tom Green	1	0	1	0
Upton	3	1,018	1	0
Ward	18	6,039	0	0
Winkler	9	1,985	1	0
Total October	83	25,901	21	0
Total September	61	14,553	14	0
Difference	22	11,348	7	0

Summary of Rigs and Wells Drilling

County—	Rigs	S. D.	Dlg.	Ttl.
Andrews	1	0	5	6
Borden	1	0	0	1
Brewster	0	1	0	1
Cochran	1	0	0	1
Coke	0	1	0	1
Crane	0	1	3	4
Culberson	0	1	2	3
Dawson	0	0	1	1
Ector	3	0	18	21
El Paso	0	2	0	2
Fisher	2	0	9	11
Glasscock	0	0	5	5
Howard	2	4	14	20
Irion	0	2	0	2
Jeff Davis	1	0	0	1
Jones	0	2	8	10
Loving	1	1	0	2
Menard	0	1	0	1
Mitchell	0	2	3	5
Pecos	1	7	6	14
Presidio	0	1	0	1
Reagan	0	1	2	3
Reeves	0	0	1	1
Runnels	3	4	7	14
Schleicher	1	0	2	3
Scurry	1	0	0	1
Sterling	0	0	1	1
Sutton	1	0	0	1
Taylor	0	0	3	3
Terrell	0	1	0	1
Upton	0	1	4	5
Ward	9	2	17	28
Winkler	2	1	9	12
Total October	30	36	124	190
Total September	49	78	101	228
Difference	19	42	23	38

Southwest Texas Fields

Summary of Field Operations

Field—	Comp.	Prod.	Abd.	Gas	Rigs	Dlg.	Ttl.
Agua Dulce	0	0	0	0	1	0	1
Angelita	0	0	0	0	1	0	1
Caesar	1	0	0	1	1	1	2
West Cole	9	6,076	1	1	4	5	9
Cuevitas	0	0	0	0	0	1	1
Darst Creek	0	0	0	0	0	1	1
Driscoll	1	0	0	1	0	0	0
Eagle Hill	0	0	0	0	1	0	1
Govt. Wells	38	7,945	3	1	9	10	19
Henne-Winch.	0	0	0	0	0	1	1
Jacobs	8	515	4	0	1	9	10
Jeffries-Lambeth	1	40	0	0	0	1	1
Jennings	1	15	0	0	0	1	1
Kimbro	2	192	0	0	0	1	1
Kingsville	0	0	0	0	0	1	1
Lucas	2	113	1	0	0	2	2
McNeil	0	0	0	0	0	1	1
Normana	0	0	0	0	0	1	1
North Dale	0	0	0	0	1	2	3
N. Cedar Cr.	0	0	0	0	1	0	1
North Pettus	7	311	1	3	2	5	7
Piedras Pintas	1	500	0	0	1	0	1
Sam Fordyce	3	1,860	1	0	5	8	13
Saxet	1	300	0	0	0	0	0
Sinton	1	0	0	1	0	1	1
Taylor	2	0	2	0	1	3	4
West Tuleta	5	335	0	1	0	2	2
Van Ormy	1	0	1	0	0	1	1
Miscellaneous	34	34	30	2	18	99	117
Total Oct.	118	18,236	44	11	47	157	204
Total Sept.	101	8,847	60	5	33	131	164
Difference	17	9,389	16	6	14	26	40

Texas Panhandle

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Carson	3	280	1	2
Childress	1	0	1	0
Collingsworth	1	0	1	0
Gray	10	2,668	1	1
Hutchinson	9	1,464	0	2
Wheeler	18	7,468	4	3
Total Oct.	42	11,880	8	4
Total Sept.	27	8,161	3	7
Difference	15	3,719	5	3

Summary of Rigs and Wells Drilling

County—	Rigs	S. D.	Drlg.	Ttl.
Carson	2	2	4	8
Childress	1	0	1	2
Collingsworth	1	0	0	1
Dallam	1	0	0	1
Gray	12	3	44	59
Hutchinson	4	1	18	23
Moore	1	0	4	5
Randall	0	0	1	1
Roberts	0	1	1	2
Wheeler	9	9	19	37
Total Oct.	31	16	92	139
Total Sept.	33	16	108	157
Difference	2	0	16	18

Gulf Coast Fields

TEXAS

Summary of Field Operations

Field—	Comp.	Prod.	Abd.	Gas	Rigs	Dlg.	Ttl.
Arriola	2	500	0	1	0	1	1
Barbers Hill	5	3,766	0	0	3	12	15
Batson	1	10	0	0	0	1	1
Big Creek	0	0	0	0	2	0	2
Blue Ridge	0	0	0	0	0	1	1
Boling	0	0	0	0	0	3	3
Buckeye	0	0	0	0	0	3	3
Clay Creek	2	360	1	0	0	1	1
Cleveland	1	350	0	0	0	0	0
Conroe	6	2,996	1	0	0	2	2
Coleto Creek	4	400	1	2	3	3	6
Damon Mound	1	30	0	0	0	2	2
Danbury	1	0	1	0	1	1	2
Esperson	1	39	0	0	0	3	3
Fannet	0	0	0	0	0	1	1
Goose Creek	0	0	0	0	0	1	1
Greta	13	2,889	1	4	2	3	5
Hankamer	1	504	0	0	0	0	0
High Island	1	0	1	0	2	3	5
Hull	3	518	0	0	0	1	1
Keeran	1	0	1	0	0	1	1
Kittrell	9	744	8	0	0	3	3
Liberty	1	187	0	0	0	0	0
Livingston	4	1,799	1	0	1	0	1
Louise	1	174	0	0	0	2	2
Manvel	7	906	1	0	0	7	7
Markham	3	0	3	0	0	0	0
McFaddin-O'Connor	2	840	0	1	1	2	3
Mykawa	0	0	0	0	0	2	2
Orange	2	20	1	0	1	0	1
Orchard	0	0	0	0	0	1	1
Pierce Junc.	3	4,500	1	0	1	3	4
Pledger	0	0	0	0	0	2	2
Port Neches	0	0	0	0	0	3	3
Raccoon Bend	4	2,904	2	0	0	3	3
Refugio	6	950	0	3	3	4	6
Saratoga	2	0	2	0	0	2	2
Sour Lake	2	90	1	0	0	2	2
Stratton Rdg.	0	0	0	0	0	1	1
Tomball	13	4,575	0	3	1	4	5
Tomoconner	1	720	0	0	0	0	0
Thompson	4	2,909	0	0	2	0	2
Vanderbilt	0	0	0	0	2	0	2
Van Vleck	1	200	0	0	0	0	0

W. Columbia.	1	0	1	0	0	1	1
Miscellaneous.	10	0	9	1	21	31	52
Total Oct.	119	33,880	37	15	45	115	160
Total Sept.	101	27,406	34	6	44	149	193
Difference	18	6,474	3	9	1	34	32

LOUISIANA

Summary of Field Operations

Field—	Comp.	Prod.	Abd.	Gas	Rigs	Dig.	Ttl.
Bay Junop	0	0	0	0	0	1	1
Bay St. Elaine	0	0	0	0	0	1	1
Black Bayou.	0	0	0	0	0	4	4
Bosco	5	1,893	2	0	4	11	15
Caillou Island	2	3,737	0	0	0	0	0
Cameron Meadows	1	0	1	0	1	2	3
Edgerly	1	0	1	0	0	1	1
Gueydan	0	0	0	0	0	1	1
Hackberry	4	3,212	1	0	3	5	8
Iowa	4	4,080	0	0	1	4	5
Jennings	1	193	0	0	2	1	3
Lake Barre	1	1,352	0	0	0	4	4
Lake Hermitage	0	0	0	0	0	4	4
Lake Pelto	1	0	1	0	0	0	0
Lake Washington	1	0	1	0	0	0	0
Leesville	7	7,399	0	0	3	7	10
Lockport	1	65	0	0	0	4	4
New Iberia	1	0	1	0	0	2	2
Port Barre	4	2,570	1	0	2	0	2
Roanoke	0	0	0	0	0	4	4
Sorrento	0	0	0	0	0	1	1
Sulphur	4	1,940	0	0	0	2	2
Sweet Lake	0	0	0	0	0	1	1
Vinton	2	380	0	0	1	5	6
White Castle.	0	0	0	0	0	1	1
Miscellaneous.	2	0	2	0	10	19	29
Total Oct.	42	26,821	11	0	27	85	112
Total Sept.	26	16,453	9	0	26	99	125
Difference	16	10,368	2	0	1	14	13

Louisiana Fields

Summary of Field Operations

	Comp.	Prod.	Dry	*Gas	Rigs	Drg.	Ttl.
Avoyelles	0	0	0	0	0	1	1
Bienville	1	0	1	0	1	2	3
Bossier	2	0	1	0	2	9	11
Caddo	17	32	6	8	9	12	21
Caldwell	1	0	1	0	0	1	1
Catahoula	0	0	0	0	0	1	1
DeSoto	0	0	0	0	0	16	16
East Carroll	0	0	0	0	0	1	1
Grant	0	0	0	0	0	1	1
La Salle	1	25	0	0	1	0	1
Morehouse	0	0	0	0	0	1	1
Natchitoches	0	0	0	0	0	5	5
Ouachita	2	0	0	2	1	1	2
Rapides	0	0	0	0	2	0	2
Red River	1	40	0	0	2	2	4
Sabine	7	215	5	0	10	24	34
Tensas	0	0	0	0	0	1	1
Union	1	0	1	0	1	1	2
Webster	0	0	0	0	2	0	2
Winn	1	0	1	0	0	0	0
Total Oct.	34	372	16	10	31	79	110
Total Sept.	39	342	18	11	37	81	118
Difference	5	30	2	1	6	2	8

*Gas production: Caddo, 137,800,000 feet; Ouachita, 3,060,000 feet; total, 140,860,000 feet.

East Texas Border Counties

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Dig.	Ttl.
Cass	1	0	1	0	2	1	3
Harrison	0	0	0	0	1	2	3
Marion	0	0	0	0	0	2	2
Panola	0	0	0	0	2	4	6
Shelby	0	0	0	0	0	5	5
Total Oct.	1	0	1	0	5	14	19
Total Sept.	0	0	0	0	2	16	18
Difference	1	0	1	0	3	2	1

Arkansas Fields

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Dig.	Ttl.
Arkansas	0	0	0	0	0	1	1
Bradley	1	0	1	0	0	0	0
Columbia	0	0	0	0	0	1	1
Hempstead	0	0	0	0	0	4	4
Lafayette	1	0	1	0	2	3	5
Little River	0	0	0	0	0	2	2
Lonoke	0	0	0	0	0	1	1
Miller	3	440	1	0	5	7	12
Nevada	0	0	0	0	1	1	2
Ouachita	3	20	1	0	0	4	4
Poinsett	0	0	0	0	0	1	1
St. Francis	0	0	0	0	0	1	1
Union	1	150	0	0	0	6	6
Total Oct.	9	610	4	0	8	32	40
Total Sept.	9	290	6	0	7	32	39
Difference	0	320	2	0	1	0	1

Alabama Fields

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Dig.	Ttl.
Houston	0	0	0	0	0	1	1
Lamar	0	0	0	0	0	1	1
Pike	0	0	0	0	1	0	1
Total Oct.	0	0	0	0	1	2	3
Total Sept.	0	0	0	0	1	2	3
Difference	0	0	0	0	0	0	0

Mississippi Fields

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Amite	0	0	0	0	0	1	1
Bolivar	0	0	0	0	1	0	1
Greene	0	0	0	0	0	1	1
Harrison	0	0	0	0	0	1	1
Hinds	0	0	0	0	1	0	1
Issequena	0	0	0	0	1	0	1
Jones	0	0	0	0	0	1	1
Lauderdale	0	0	0	0	0	1	1
Monroe	0	0	0	0	0	2	2
Scott	0	0	0	0	0	1	1
Simpson	0	0	0	0	1	1	2
Walthall	0	0	0	0	1	0	1
Warren	1	0	1	0	0	0	0
Washington	0	0	0	0	0	1	1
Winston	0	0	0	0	0	1	1
Total Oct.	1	0	1	0	5	11	16
Total Sept.	5	0	3	2	5	8	13
Difference	4	0	2	2	0	3	3

Rocky Mountain Area

NEW MEXICO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dig.	Ttl.
Eddy	6	105	3	0	0	4	4
Lea	12	26,685	0	0	9	25	34
McKinley	0	0	0	0	1	5	6
San Juan	0	0	0	0	1	12	13
San Miguel	0	0	0	0	0	6	6
Santa Fe	0	0	0	0	0	3	3
Valencia	0	0	0	0	0	3	3
Miscellaneous.	0	0	0	0	0	9	10
Total Oct.	18	26,790	3	0	12	67	79
Total Sept.	21	67,215	0	1	13	58	71
Difference	3	40,425	3	1	1	9	8

COLORADO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dig.	Ttl.
Adams	0	0	0	0	1	1	2
Elbert	0	0	0	0	0	2	2
El Paso	1	0	1	0	0	0	0
Grand	0	0	0	0	0	2	2
Jackson	0	0	0	0	0	2	2
Larimer	1	0	1	0	0	3	3
Lincoln	0	0	0	0	1	0	1
Moffat	1	0	0	1	2	2	4
Park	1	0	1	0	0	1	1
Routt	0	0	0	0	0	2	2
Weld	0	0	0	0	0	1	1
Miscellaneous.	0	0	0	0	0	16	16
Total Oct.	4	0	3	1	4	32	36
Total Sept.	0	0	0	0	3	34	37
Difference	4	0	3	1	1	2	1

WYOMING

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dig.	Ttl.
Albany	1	0	1	0	0	2	2
Big Horn	0	0	0	0	2	7	9
Carbon	0	0	0	0	1	6	7
Converse	0	0	0	0	1	6	7
Crook	0	0	0	0	0	7	7
Fremont	2	0	2	0	0	6	6
Lincoln	0	0	0	0	0	4	4
Natrona	0	0	0	0	0	8	8
Niobrara	0	0	0	0	0	3	3
Park	2	3,300	0	0	1	4	5
Sweetwater	1	0	0	1	0	8	8
Sublet	0	0	0	0	0	4	4
Uinta	0	0	0	0	0	6	6
Washakie	1	15	0	0	2	0	2
Weston	0	0	0	0	2	6	8
Miscellaneous.	0	0	0	0	0	4	4
Total Oct.	7	3,315	3	1	9	81	90
Total Sept.	3	964	0	0	13	78	91
Difference	4	2,351	3	1	4	3	1

MONTANA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dig.	Ttl.
Carbon	0	0	0	0	0	3	3
Fergus	0	0	0	0	0	3	3
Glacier	11	1,401	1	0	7	18	25
Liberty	1	0	1	0	0	4	4
Petroleum	1	0	1	0	0	2	2
Phillips	3	0	0	3	0	1	1
Teton	0	0	0	0	0	3	3
Toole	7	317	1	1	0	9	9
Miscellaneous.	0	0	0	0	0	11	11
Total Oct.	23	1,718	4	4	7	54	61
Total Sept.	26	1,245	6	6	9	64	73
Difference	3	473	2	2	2	10	12

UTAH

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Dig.	Ttl.
Total Oct.	0	0	0	0	1	14	15
Total Sept.	0	0	0	0	1	14	15
Difference	0	0	0	0	0	0	0

Kentucky Fields

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dig.	Ttl.
Ohio	68	3,703	19	2	1	8	9
Hancock	13	540	3	1	0	6	6
McLean	2	50	1	0	0	1	1
Logan	1	20	0	0	0	0	0
Haywood	0	0	0	0	0	1	1
Total Oct.	84	4,312	23	3	1	16	17
Total Sept.	40	2,577	6	0	1	33	34
Difference	44	1,736	17	3	0	17	17

Lima Fields

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dig.	Ttl.
Wood	0	0	0	0	0	3	3
Hancock	0	0	0	0	0	1	1
Henry	0	0	0	0	0	2	2
Allen	1	35	0	0	1	5	6
Van Wert	0	0	0	0	0	3	3
Auglaize	0	0	0	0	0	4	4
Hardin	1	12	0	0	1	0	1
Darke	0	0	0	0	1	0	1
Mercer	0	0	0	0	0	2	2
Shelby	0	0	0	0	0	2	2
Sandusky	0	0	0	0	0	2	2
Ottawa	0	0	0	0	0	1	1
Lucas	2	5	1	0	0	0	0
Seneca	1	0	0	1	0	2	2
Wyandot	0	0	0	0	1	6	7
Total Oct.	5	52	1	1	4	33	37
Total Sept.	9	28	2	3	2	31	33
Difference	4	24	1	2	2	2	4

Indiana Fields

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dig.	Ttl.
Gibson	1	10	0	0	1	5	6
Sullivan	1	30	0	0	0	2	2
Pike	1	15	0	0	0	4	4
Daviess	0	0	0	0	0	4	4
Warrick	0	0	0	0	0	4	4
Spencer	0	0	0	0	0	5	5
Harrison	0	0	0	0	0	1	1
Porter	0	0	0	0	0	2	2
Henry	0	0	0	0	0	2	2
Shelby	0	0	0	0	0	1	1
Hancock	0	0	0	0	0	2	2
Lawrence	0	0	0	0	0	1	1
Monroe	0	0	0	0	0	1	1
Jay	0	0	0	0	0	2	2
St. Joe	0	0	0	0	0	1	1
Greene	0	0	0	0	0	1	1
Perry	2	0	2	0	0	5	5
Dubois	0	0	0	0	0	1	1
Posey	1	0	1	0	0	1	1
Delaware	0	0	0	0	0	1	1
Vanderburg	0	0	0	0	0	9	9
Knox	1	100	0	0	0	1	1
Newton	0	0	0	0	0	1	1
Total Oct.	7	155	3	0	1	57	58
Total Sept.	18	121	5	4	1	44	45
Difference	11	34	2	4	0	13	13

Illinois Fields

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dig.	Ttl.
Clark	0	0	0	0	4	4	
Cumberland	1	0	1	0	0	0	
Crawford	1	1	0	0	3	3	
Marion	0	0	0	0	1	1	
Madison	0	0	0	0	0	1	1
Macoupin	0	0	0	0	0	1	1
Bond	0	0	0	0	0	2	2
Perry	0	0	0	0	0	1	1
McDonough	0	0	0	0	0	1	1
Clinton	0	0	0	0	0	1	1
Total Oct.	2	1	1	0	15	15	
Total Sept.	0	0	0	1	16	17	
Difference	2	1	1	1	1	2	

Central Ohio Fields

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dig.	Ttl.
Ashland	7	2	4	2	2	6	8
Medina	1	0	0	1	5	11	16
Cuyahoga	0	0	0	0	0	1	1
Lorain	2	0	1	1	1	6	7
Holmes	5	0	1	4	4	5	9
Richland	1	0	0	1	1	2	3
Wayne	4	25	2	1	1	3	4
Summitt	0	0	0	0	1	2	3
Fairfield	2	0	0	2	2	1	3
Marion	0	0	0	0	0	1	1
Knox	5	7	0	4	2	6	8
Coshocton	5	125	2	1	0	6	6
Licking	3	12	0	0	3	4	7
Musgingum	5	22	1	2	2	8	10
Athens	4	0	2	2	1	9	10
Delaware	0	0	0	0	0	1	1
Tuscarawas	2	0	0	2	0	4	4
Stark	9	0	1	8	4	17	21
Belmont	3	0	2	1	0	3	3
Guernsey	12	23	3	8	7	16	23
Crawford	0	0	0	0	0	1	1
Gallia	1	0	1	0	0	4	4
Scioto	1	0	0	1	0	1	1
Pike	0	0	0	0	0	2	2
Carroll	0	0	0	0	0	3	3
Vinton	3	0	2	1	0	1	1
Lawrence	0	0	0	0	1	2	3
Meigs	13	0	2	11	3	11	14
Ttl. Oct.	88	217	24	53	40	137	177
Ttl. Sept.	58	331	11	29	43	157	200
Difference	30	114	13	24	3	20	23

Michigan Fields

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dig.	Ttl.
Midland	17	7,846	2	0	17	33	50
Isabella	8	370	4	2	20	32	52
Oceana	2	150	1	0	6	16	22
Gratiot	0	0	0	0	4	5	9
St. Clair	0	0	0	0	2	0	2
Clinton	0	0	0	0	1	0	1
Clare	0	0	0	0	3	0	3
Kent	0	0	0	0	2	3	5
Cass	0	0	0	0	3	1	4
Montmorency	0	0	0	0	2	0	3
Sanilac	0	0	0	0	3	0	3
Newaygo	0	0	0	0	0	3	3
Saginaw	2	10	1	0	5	1	6
Shiawassee	0	0	0	0	2	2	4
Allegan	0	0	0	0	1	2	3
Livingston	0	0	0	0	1	3	4
Alpena	0	0	0	0	0	1	1
Cheboygan	0	0	0	0	0	3	3
Macomb	0	0	0	0	1	1	2
Genesee	1	0	1	0	1	0	1
Mecosta	2	0	2	0	6	8	14
Montcalm	3	25	1	1	1	11	12
Muskegon	0	0	0	0	5	7	12
Ogemaw	3	210	1	0	5	19	24
Gladwin	0	0	0	0	0	3	3
Eaton	0	0	0	0	0	1	1
Hillsdale	0	0	0	0	2	0	2
Lenawee	0	0	0	0	1	0	1
Osceola	1	0	1	0	0	1	1
Lapeer	2	20	1	0	4	1	5
Arenac	0	0	0	0	0	1	1
Ttl. Oct.	41	8,641	15	3	99	158	257
Ttl. Sept.	35	24,919	8	7	99	153	252
Difference	6	16,278	7	4	0	5	5

Eastern Fields

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Gas	Rigs	Dig.	Ttl.
Bradford	160	159	0	1	10	66	76
Allegany	7	7	0	0	1	2	3
Venango-Clarion	14	12	2	1	0	9	9
Butler-Armstrong	4	4	1	1	1	4	5
S.W. Penna.	9	5	4	4	6	14	20
S.E. Ohio	41	242	13	10	17	29	46
West Virginia	58	206	19	19	27	93	120
Total Oct.	293	653	39	36	62	217	279
Total Sept.	259	1,352	23	43	80	191	271
Difference	34	719	16	7	18	26	8

Central West Fields

(Continued from Page 73)

In Scott County, American Can Co.'s test on the company's land in Jennings Township was a water well, total depth 1,870 feet, and was abandoned.

In Spencer County T. F. Seitz' well on the F. W. and G. A. Grass farm, NE SE Section 11, Huff Township, is drilling. I. A. Polhamus is drilling below 500 feet on the William Grass farm, Section 11, same township. Ohio Oil Co.'s No. 1 on the S. M. and L. Varner farm, SE NW Section 19, is showing for a nice oil well in the Mooretown formation.

In Sullivan County Dome Oil Co.'s No. 1 on the A. R. Hauger farm, SW NE Section 19, was reported dry. In Fairbanks Township M. V. Yeager and others are working hard to make a producer in No. 2 on the L. Hunt, in Section 6, same county.

In Washington County Charles E. Wyman is drilling No. 1 Offa Chastain, NE SE Section 12, Vernon Township.

KENTUCKY

In Ohio County, J. C. Miller and others' No. 1 on the Edward Smith farm produced an initial of 75 bbls. Mecca Oil Co.'s No. 5 on the J. T. Smith farm, same county, produced 85 bbls. initial. Snowden-McSweeney Co.'s No. 1 M. B. Brown farm, same field, produced 10 bbls., and its No. 1 on the Ethel Marlow farm, in the Roberts Pool, was a dry hole. S. M. Sirman's No. 1 on the Charles Boyd farm, same pool, also was dry. Lowman and others picked up a duster in No. 1 on the Allen Neel farm. Cumberland Petroleum and others' No. 1 on the Guy Richards farm, near Oak Station, produced 70 bbls. initial. B. E. Calvert and others' No. 1 P. R. Kelley farm, same pool, was a dry hole at 600 feet. Thresher and others' No. 1 on the Crowe-Beskett farm, same field, was dry. D. J. White's No. 1 on the Lafe Payne 217-acre farm, was dry. Rough Creek Fault Drilling Co. found a dry hole on the Wavey Lindsay farm, Ohio County, in the Jackson sand.

In Hancock County, James C. Ellis drilled in Nos. 1 and 2 on the Smith heirs farm, with initials of 90 and 80 bbls., and No. 7 on the Charles Richard farm, with an initial of 165 bbls. W. E. Hupp and others' No. 4 on the Chancellor heirs farm, produced an initial of 90 bbls. and No. 5 same farm, was a dry hole. Same parties drilled in a dry hole in No. 5 on the Lee Richards 40 acres, in the Crowe Hill Pool. Same company's No. 13 on the Ray heirs farm produced 13 bbls. initial. Leeper Oil Co.'s No. 1 Jackson farm, near the town of Webber, same county, was dry. John Ross and others drilled in a dry hole in No. 2 on the Jane Crowe farm, near West Point.

Oklahoma Fields

(Continued from Page 69)

in No. 26 Seay, 1,258 feet south and 1,506 feet east of C Section 3-7s-5w, Jefferson County.

Daphine Oil Co. has rig up for No. 1 Butler, NW cor. Section 13-2s-3w, Carter County.

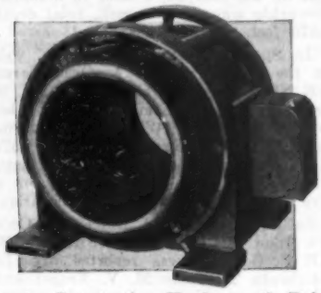
The Texas Co.'s No. 1 Harrell, C N half SE NW Section 22-2s-2w, was dry and abandoned at 1,322 feet.

Mudge Oil Co. will abandon No. 2 Walker-Voorhees, NE NE SW Section 25-1s-3w, at 2,850 feet. It had a showing of oil at 2,746-60 feet.

NEW AND IMPROVED EQUIPMENT

Seal-Clad Squirrel-Cage Motor Has Good Features

The new "seal-clad" squirrel-cage motors introduced by the Allis-Chalmers Manufacturing Co., Milwaukee, Wis., are of open type construction, with perma-

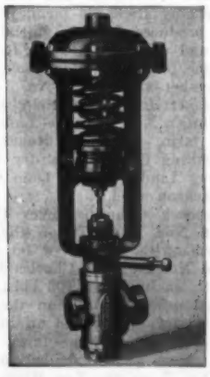


nent coil protection. Hard, smooth, Bakelite shields are sealed over the stator coils, giving protection against metallic dust, grit, oil, moisture, mild acids and other agents injurious to installation. They are built in ratings up to 25 horsepower 1,800 r.p.m. and suited to a much broader range of application than the ordinary open motor.

Seal-clad motors have cast-steel frames; twistless and distortionless stators; silver-brazed, indestructible rotors; oil and dust-tight sleeve or antifriction bearings.

Friction Is Lowered in Mason-Neilan Regulator

A new pressure-reducing regulator has been developed by the Mason-Neilan Regulator Co., 1190 Adams Street, Boston, Mass., manufacturer of automatic



regulating and control equipment. This regulator, designated as the No. 505 series, is equipped with noncorrosive stainless steel ball bearings which roll up and down with the valve stem travel and reduce friction to a minimum. Ball bearings also turn freely under the spring adjusting screw and permit pressure settings to be easily accomplished.

Flexible multiple springs permit the use of larger diaphragms and are said to increase the sensitivity and accuracy of the regulation. A self-aligning spring button prevents spring tilt and side sway from interfering with smooth operation. These regulators are equipped with the Centroguide valve, and advanced type of valve in which the valve plug is centrally guided at the top and bottom of the valve body. It is asserted that this practically eliminates wire drawing and cutting of the valve plug and valve seat rings. Grease-sealed stuffing boxes can be furnished for those services where it is desirable. An illustrated bulletin describes the new regulators.

Among the Equipment Houses

The Larkin Packer Co.'s new district warehouse and store at 41 South Elwood Avenue, Tulsa, is now open for business, with Charles F. Dougherty as district sales manager. Deliveries are being made throughout Oklahoma, Kansas and North Texas. Two carloads of stock were shipped to the new location. Emmett A. Cronin handles sales in Oklahoma and Milton Greve has charge of the store.

—

W. H. Gaither has been made sales representative in the Gulf Coast region for the Rike Full-Float Valve Corp., Longview, Tex. He has established an office in Houston.

—

The Duriron Co., Dayton, Ohio, announces several changes in branch office management. N. E. Philpot, formerly manager of the Chicago office, is now in charge of the New York office, succeeding W. E. Pratt, resigned. Col. M. W. Smith, formerly manager in Buffalo, succeeds him and W. A. Watkins succeeds Colonel Smith.

—

B. W. Vinson Co., Inc., Hunt Building, Tulsa, has been appointed sales representative for the Edward Valve & Manufacturing Co., Inc., East Chicago, Ind., in the Tulsa district.

—

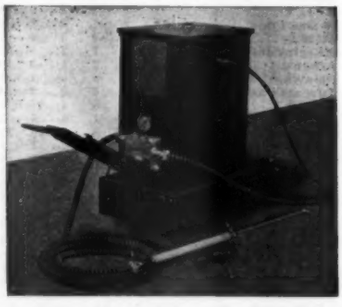
Appointment of Robert J. Working as district sales manager in Cincinnati for the Republic Steel Corp. is announced by N. J. Clarke, vice president in charge of sales. Mr. Working succeeds W. A. Peck.

—

On board the U.S.S. Bremen when it sailed November 9, were H. L. Horning, president of the Waukesha Motor Co., and J. B. Fisher, chief engineer, on a trip to Europe to confer with well known men in the internal combustion engine field and the oil industry.

Vapor Spray Cleaning Unit Announced for Refineries

The Fireless Hypressure jenny, as shown, is a new model added to the line of vapor-spray cleaning units, manufactured by the Homestead Valve Manufacturing Co., Coraopolis, Pa. The entire design of this new model is marked by simplicity, compactness and the fewest



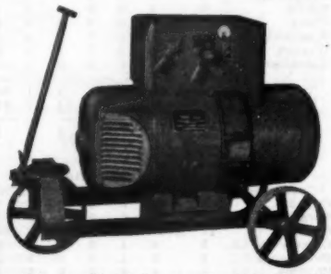
possible parts. It is portable and easy to move, being only 20 inches wide, 45 inches high and 52 inches long, including handle. It uses plant steam, instead of producing its vapor by means of an oil-fired generator.

The units consists of a water or solution tank, containing an automatic float level valve and a rotary pump, directly connected to and driven by a fractional horse-power motor, operated from a light socket. The amount of compound and moisture content can be varied at will by means of a manually adjustable mechanism, which enables the operator to obtain anything from a heavy cutting spray to a light cleaning mist.

Operating over a range of pressure from 50 to 250 pounds, the Fireless Hypressure jenny is designed to meet a demand for vajor spray cleaning in refineries chemical plants, garages and other establishments where plant steam is available. The vapor spray method of cleaning has proven to be a time and labor saver in the cleaning of machinery of all kinds, motors, skylights, exterior and interior walls, paint cleaning and stripping, or wherever cleaning is a problem.

General Electric Making Improved Arc Welding Set

A line of improved portable, single-operator arc-welding sets which retain the proved characteristics of previous



models is offered by the General Electric Co. Self-stabilization is the outstanding feature of the new arc welders, an advantage which is said to provide excellent performance throughout the entire welding range, using any type of electrodes, bare, lightly fluxed, or heavily coated.

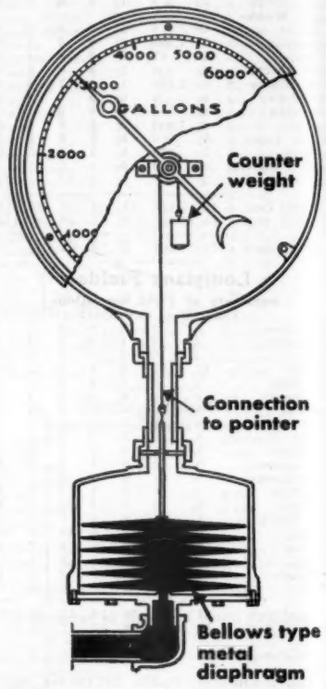
The improved welders belong to what is designated as the WD-30 line. Each welder is a self-contained unit, having no external reactor, resistor or separate exciter. It is largely due to the self-excited design of these machines that the inclusion of sufficient self-stabiiization to provide steady welding characteristics under all conditions is possible. This self-stabilization makes the welding arc both "peppy" and stable at all times.

Separate controls are provided for adjustment of welding current and welding voltage. These controls are located on a dead-front panel on top of the machine and at the most convenient height above the floor. On this panel are also located a switch handle for reversing polarity and an instrument with selector switch for indicating welding current and welding voltage. All controls are clearly labeled to facilitate rapid and accurate adjustment. Operating efficiency is high because of the absence of power-consuming accessories.

All working parts of the machine are protected against damage from water or other foreign materials by drip-proof construction. The entire welding set is low-hung on a three-wheeled truck.

New Gauge for Measuring Tanks Put on the Market

A new type of liquid gauge has been placed on the market by Imperial Instruments, Inc., a subsidiary of the Imperial Electric Co. of Akron, Ohio. The



gauge has been undergoing field tests for two years and installations have been made for large oil distributors in Ohio.

The accompanying diagram shows the hydrostatic principle of operation. The liquid in the tank is connected by means of copper tubing to a bellows-type metal diaphragm which is linked mechanically to the indicator of the gauge. As the tank is filled the diaphragm expands, the linkage moves the indicator and the reading on the dial shows the exact quantity in terms of gallons, pounds, barrels, inches, or any desired unit.

The measurement is based on pressure and therefore on weight. This means that the gauge may be calibrated to show the correct volume at any specified temperature. In the case of gasoline this is 60° F., and eliminates the necessity of making temperature corrections.

Where automatic valves are used, it is possible to compensate for vapor pressure by connecting the diaghragm housing with the top of the tank by means of copper tubing.

These gauges are built to measure liquids in tanks ranging in capacity from 300 to 3,200,000 gallons. Crude oil, kerosene, motor oil, fuel oil, etc., may be measured.

OXWELD CUTTING MACHINE

The Linde Air Products Co., 30 East Forty-second Street, New York, has announced an addition to its line of oxyacetylene cutting machines, the Oxweld Monitor or CM-8 cutting machine. The Monitor is of rugged construction, streamlined to facilitate operation and maintenance. It is easily portable, and is adustable through the entire range of oxyacetylene cutting. All the working elements are enclosed in a double cover. The Oxweld Monitor does automatic straight line cutting of practically un-

limited length, straight bevel cutting, two bevels at a time if desired, plate edge preparation, circle or ring cutting of diameters up to 100 inches and the cutting of curved or irregular shapes.

Filter for Compressed Air and Vacuum Lines Offered

The model CP pipe line filter for compressed air and vacuum lines is offered by the Staynew Filter Corp., Rochester, N. Y., as providing a positive high-efficiency filter, in addition to the inertia

or centrifugal principle of separation. Removal of water, oil, iron rust, pipe scales and any other foreign matter is accomplished. The filtering medium may be cleaned quickly by reversing the flow of the air. By closing a valve to shut off air going into the filter housing and opening the drain cock the air in the outlet pipes or hose is blown back through the filter proper, removing material collected on the filtering surface.

These filters will deliver clean dry air for paint spraying, compressed air tools, hoists, cleaning operations, agitating liquids, ice making, chemical processes, etc., when installed near the point where the air is being used. It is obtainable for eight sizes of pipe ranging from one-quarter inch to 3 inches. The use of two or more units in parallel is recommended for larger pipe sizes and capacities.

These filters remove all water, oil, rust, iron scales or other foreign matter from air passing through pipes, and prevent wear on all tools or other equipment operated by compressed air.

The model CP filter has an aluminum housing enclosed in a pressed steel container with flanged joint made to withstand a working pressure of 125 pounds. Higher pressure shells can be supplied as special equipment.

NEW BOILER METER ANNOUNCED

To supply the increasing demand of industrial establishments for higher boiler room economy, the Bailey Meter Co., Cleveland, Ohio, has developed a new steam flow, air flow boiler meter. This meter records steam flow from the boiler, air flow supplied for combustion and flue gas temperature—all on one 12-inch diameter uniformly graduated chart. It also indicates steam flow on a porcelain enameled scale and integrates the total steam flow on a six-digit counter which reads like an automobile mileage register. The three important factors of boiler operation—combustion efficiency, steam output and flue gas temperature—are combined and co-ordinated in this one meter. It is equipped with the new direct-reading Bailey escapement type integrator; an accurate, sensitive air flow mechanism; a sturdy, dust and moisture-proof pressed steel casing suitable for flush front or surface mounting.

Notes About Trade Literature

A circular describing the new Axelson hardened-steel liner, designed primarily for use in deep-well pumps, has been prepared by the Axelson Manufacturing Co., Box 710, Vernon Station, Los Angeles, Calif.

—

Among interesting articles in the current number of Inco, published by the International Nickel Co., 67 Wall Street, New York, is one telling how 15-inch welded tubing is now produced in non-corrosive materials.

—

A request sent to the Bradford Motor Works, Bradford, Pa., brings a bulletin descriptive of the new B-M-W Neilson type C sucker-rod elevators.

—

"Industrial Cable," a new publication of the General Electric Co., Schnectady, N. Y., describes all standard types of insulated wire and cable used by industrials for transmission, distribution and control. The publication, of 128 pages and with an ornamental cover, is a companion to Bulletin GEA-1837, an 80-page publication on "How to Select Insulated Cable." Copies of either are available on request.

—

Two illustrated booklets on "Caterpillar" Diesel power units and an interesting booklet entitled "Big Little Things" have been released by the Caterpillar Tractor Co., Peoria, Ill.

—

The Borden Co., Warren, Ohio, has for distribution a bulletin covering the full line of modernized Beaver pipe tools.

—

New bulletins offered by the Worthington Pump & Machinery Corp., Harrison, N. J., include gas engines, vertical four-cycle, Type CG; and automatic power pump receiver sets, vertical triplex single-acting.

—

Three new loose-leaf bulletins—one on high-voltage magnetic switches, one on indoor disconnecting switches and one on indoor a-c. cubicle switchgear—are ready for distribution by the General Electric Co., Schenectady, N. Y.

—

A well-written bulletin outlining the features of Airco-Wilson arc welders may be obtained by writing to the Air Reduction Sales Co., Lincoln Building, New York.

—

The Tuthill Pump Co., 131 West Sixty-third Street, Chicago, is sending on request a folder describing and illustrating Tuthill relief valves.

—

General specifications for DC motor-driven types SA300, SA400 and SA600 Lincoln "Shield Arc" welders are contained in a bulletin announced by the Lincoln Electric Co., Cleveland, Ohio.

—

Naylor line pipe and its distinguishing features are the subject of an attractive loose-leaf booklet obtainable from the Naylor Pipe Co., 1230 East Ninety-second Street, Chicago. Naylor flanges, bolts and gaskets and fittings are covered also.

—

Bulletin 22:23-B10, issued by Roots-Connersville Blower Corp., Connersville, Ind., illustrates and describes in its eight pages the standard and heavy-duty types of blowers.

—

D. W. Haering & Co., Inc., 3408 West Monroe Street, Chicago, announce the publication, at bimonthly intervals, of "H-O-H News," a house organ devoted to the presentation of information in the scale and corrosion control and proportioning fields.

—

A catalog describing a new force-feed lubricator, enclosed type, put on the market by the Hills-McCanna Co., 2349 Nelson Street, Chicago, may be obtained from that company.

—

The Schramm belt and motor-driven compressors are covered by a new catalog published by Schramm, Inc., West Chester, Pa.

—

Recently printed bulletins on oil field equipment, issued by the Moon Manufacturing Co., 108 North Jefferson Street, Chicago, include Type 4 and Type 6 Turbo generators.

—

Type G Rodtite packing, recommended for service against propane, butane, Ethyl Gasoline and light or heavy oils, is described in a folder prepared by the Darcoid Co., Inc., New York.

Gaso Pumping Units Ready for Shipment to Venezuela

The accompanying picture, taken in the plant of the Gaso Pump & Burner Co. in Tulsa, shows four Gaso pumping units ready for shipment to a pipe line company in Venezuela. More than a dozen shipments of similar units have been made by Gaso, in the last two years, to this same Venezuela company.

These are Gaso Figure 1,740 high-pressure pipe line pumps. They have interchangeable-liner fluid ends, and pump from 54 to 502 bbls. per hour, at 1,400 to 300 pounds pressure. The pumps are driven by heavy-duty internal combustion engines through V-belt drive. The company does a large export business, which has shown a steady increase from year to year. Its pumps are in use in every foreign country which produces oil.

Men Well Known in the Equipment Field

The Crane Co. has transferred P. R. Mork from New York to the general office in Chicago, where he will serve as vice president in charge of sales. Mr.

P. R. MORK

Mork, who was vice president in charge of the New York City territory, has a wide acquaintance, having served as manager of the Minneapolis and Duluth branches before going to New York in 1927. In his new position he will assume the duties of Vice President H. W. Seymour, who is on leave of absence owing to ill health.

P. R. Berryman, formerly vice president of the Trenton Potteries, has succeeded Mr. Mork as manager of the New York branch and associate branches of Crane Co. in the metropolitan area.

Two-Stage Compressor Is Added to Schramm's Line

Schramm, Inc., of West Chester, Pa., has announced the addition of two-stage portable compressors to its line of single-stage machines. The outstanding characteristic of the two-stage outfit is the fact that many parts are interchangeable with the single-stage compressor permitting the user to utilize many of the parts which he may already have on hand for servicing the new design.

High efficiency has been gained by piping air from the first stage through a cross-flow type intercooler into the second stage which gives the air the final compression before entering the air receiver. The Schramm two-stage compressor eliminates many packings, pipings and fittings and results in a compact, straightline design, all moving parts being in mechanical balance and easily accessible for servicing.

The vertical, water-cooled design is used. These two-stage compressors are built in four sizes with either gasoline or Diesel engine drive, and are available in all types of portable mountings, including wooden skid mounting, steel wheels, rubber tired wheels, Schramm spring trailer, two-wheel trailer, motor truck mounting, rail car mounting, etc.

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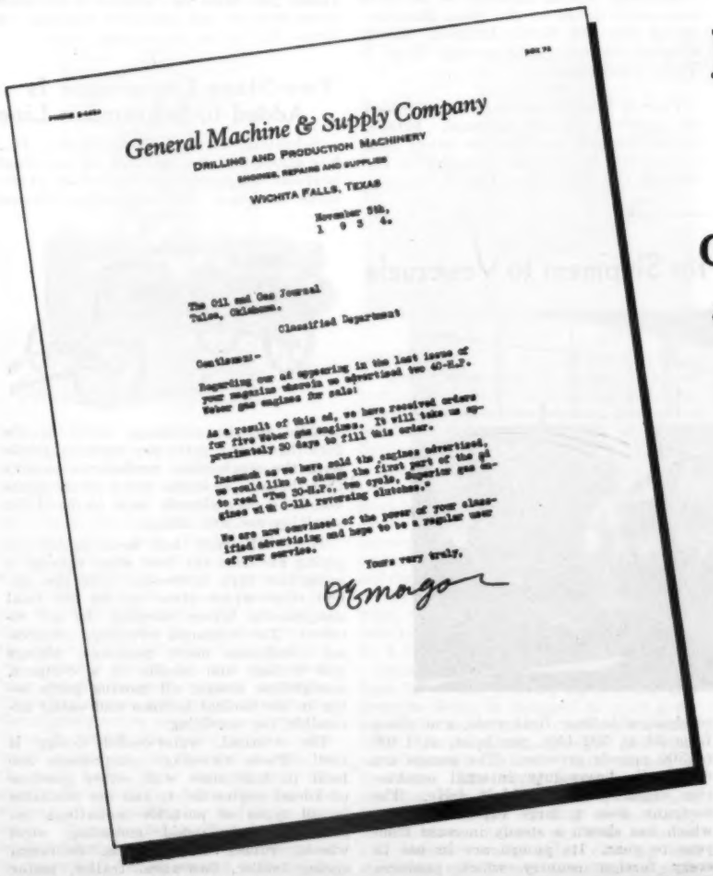

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November 9th, 1934.

The Oil and Gas Journal
Tulsa, Oklahoma.
Classified Department

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Regarding our ad appearing in the last issue of your magazine wherein we advertised two 40-H.P. Weber gas engines for sale:

As a result of this ad, we have received orders for five Weber gas engines. It will take us approximately 30 days to fill this order.

Inasmuch as we have sold the engines advertised, we would like to change the first part of the ad to read "Two 20-H.P., two cycle, Superior gas engines with C-Lila reversing clutches."

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O. Mongo

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THE OIL AND GAS JOURNAL

Tulsa, Oklahoma

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Royalties—Production

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WANTED — Experienced salesmen of refined oil products, Illinois, Wisconsin, Minnesota, Missouri, liberal commission basis. Kendrick Oil Company, Tulsa, Oklahoma.

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25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air Compressor. Six-inch Oster Pipe Threading Machine. Also, large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
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Incorporations

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DELAWARE CHARTERS—Fees small; submitted forms. Chas. G. Guyer, 901 Market Street, Wilmington, Del.

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